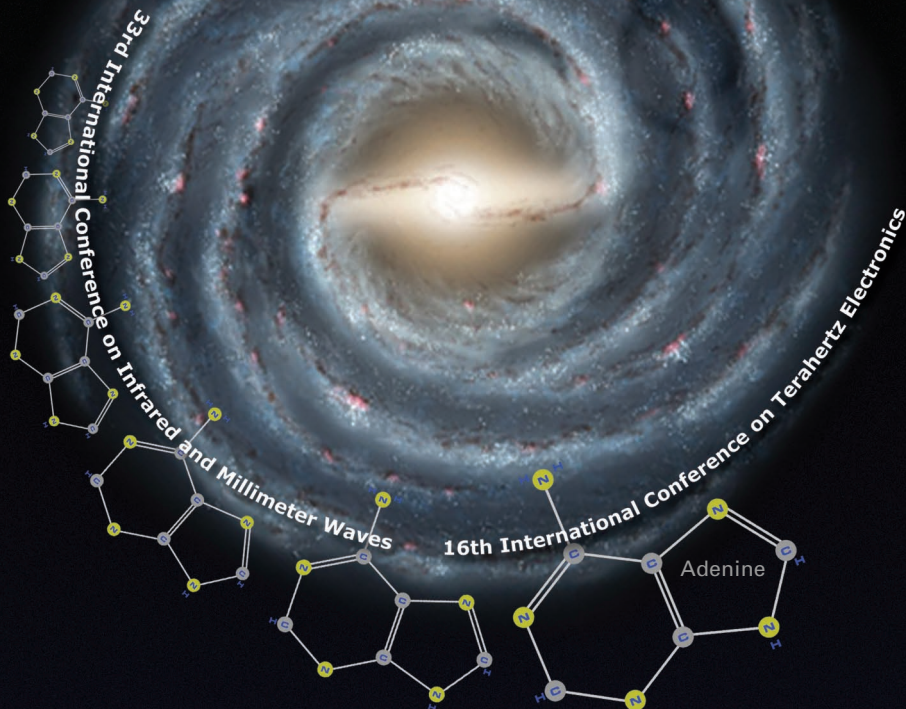


CONFERENCE GUIDE

33rd International Conference on
Infrared, Millimeter, and Terahertz Waves

IRMMW-THz 2008
"Terahertz for Life"



September 15 - 19, 2008

California Institute of Technology, Pasadena, California, USA

Technical Co-Sponsorship: IEEE Microwave Theory and Techniques Society.
Conference hosted by JPL Submillimeter Wave Advanced Technology (SWAT) team
and the Caltech Divisions of Biology and Engineering and Applied Science.

www.irmmw-thz.org

Milky Way Galaxy image courtesy Dr. Robert Hurt, Caltech

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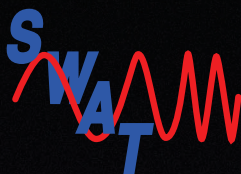
Defense Advanced Research Program Agency (DARPA)
Microsystems Technology Office

Technical Co-Sponsorship

IEEE Microwave Theory and Techniques Society



Conference hosted by JPL Submillimeter Wave Advanced Technology (SWAT) team and the Caltech Divisions of Biology and Engineering and Applied Science



New Name, New Mission in 2009!

Journal of Infrared, Millimeter and Terahertz Waves

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**Journal of
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IRMMW-THz 2009

The 34th International Conference on Infrared, Millimeter, and Terahertz Waves

Paradise Hotel, Busan, Korea

September 21-25, 2009

Call for Papers

Important Dates

Submission of abstracts : April 10, 2009

Notification of acceptance : May 22, 2009



www.irmmw-thz2009.org, irmmwthz2009@gmail.com

General Chair: Kenneth J. Button, Honorary Chair: Jongmin Lee (GIST)
Conference Chair: Han-Jo Lim (Ajou Univ.), Co-Chair: Gun-Sik Park (Seoul National Univ.)

PARADISE HOTEL, BUSAN on the scenic Haeundae Beach

The Kenneth J. Button Prize



The Kenneth J. Button Prize for 2008
is awarded to

Professor Alexander G. Litvak

Institute of Applied Physics, Russian Academy of Sciences
Nizhny Novgorod, Russia

for outstanding contributions to research on plasma physics, the generation and amplification of coherent millimeter wave, terahertz and infrared radiation, and to scientific and technical applications in thermonuclear fusion plasma heating, sources of multi-charged ions for heavy ion accelerators and ion implantation, electron-positron colliders, millimeter-wave radar and industrial materials processing.

The Kenneth J. Button Prize is awarded annually at the International Conference on Infrared, Millimeter, and Terahertz Waves in recognition of outstanding contributions to the Science of the Electromagnetic Spectrum. The Prize is named after the founder of the Conference Series and is administered by the Institute of Physics in London. It consists of a bronze medal, a certificate and a cash prize of £2000. At each annual meeting of the Conference, a Prize Committee will consider the nominations that have been submitted and will elect the recipient of the Medal and Prize. The presentation will be made at the following annual meeting of the Conference and the recipient will normally be invited to give a plenary lecture at that meeting.

NOMINATION

Any scientist active in the field of the Conference may make a nomination for the Prize. To make a nomination, the information listed below should be sent, under the heading **Nomination For The Kenneth J. Button Prize**, to The Secretary to the Awards Committee, The Institute of Physics (London).

Preferably by e-mail to: awards@iop.org, or by mail to: 76 Portland Place, London, W1B 1NT, UK, or by Fax to: +44 (0)207 470 4848.

The closing date for nominations for the 2010 Prize will be Friday April 19, 2009.

FORM OF NOMINATION

1. The Proposer's name, title, full address, and e-mail address.
2. The Nominee's full name, title, present position, address, and e-mail address.
3. A curriculum vitae for the nominee (a full publication list is not required, see Item 6 below).
4. A list of all qualifications and honors.
5. A statement of up to 500 words in support of the nomination in English (the language of the Conference), indicating the contributions to the subject made by the nominee and the impact of those contributions on the development of the subject.
6. A list of up to ten publications by the nominee.
7. The names, titles, mailing addresses and e-mail addresses of two people of standing in the subject (i.e. referees) who may be consulted about the nomination.

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Welcome to IRMMW-THz 2008

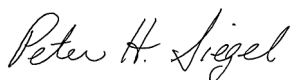
Welcome to the 33rd International Conference on Infrared and Millimeter Waves and the 16th International Conference on Terahertz Electronics – now formally merged into the *International Conference on Infrared, Millimeter, and Terahertz Waves*.

In the spirit of unification and revitalization we celebrate this year's conference theme, "*Terahertz for Life*." This theme emphasizes the broadening scope and continued longevity of our field. We also highlight this motif in bringing together several formerly disparate groups and technical application areas. At this year's conference you will find papers and presenters from the field of astronomy and astrophysics, where terahertz is being employed extensively in the quest for a basic understanding of the formation, composition and evolution of the universe and in the search for *life* in our own solar system and beyond. Also in support of space systems, terahertz sounding of the Earth's atmosphere are targeted at tracking and understanding those processes that determine the state of our continued *life* on this planet. In contrast you will hear from representatives in the *life* sciences, where terahertz is now finding a niche in chemistry, biophysics and medicine. You may even find terahertz coming into your daily *life*, as significant emphasis is now being placed on the use of terahertz imaging and spectroscopy for security applications. The theme of "*Terahertz for Life*" permeates this conference as we hope it will continue to permeate your own *life*.

On another level, this year's conference brings together technical teams whose focus and backgrounds have been on optical techniques and who must drop way down in frequency to work in this spectral range, and those who have come into this field from the radio and microwave communities, who are pushing up to shorter and shorter wavelengths. It is hoped that this merging of two regions in the electromagnetic spectrum will continue in future IRMMW-THz conferences, where we intend to encourage and to provide a unique and enduring forum for these two vibrant communities.

Finally, in highlighting the joining of different fields, different communities and different applications through a similar technical base, we emphasize the importance of cross-fertilization and a cross-disciplinary approach to research. We hope to expose you to individuals and to areas of study that will stimulate your creative spirits, and hope you will depart Pasadena with a refreshed outlook on your own work.

With that, we ask you to take advantage of our hospitality, participate in our growing community, connect with your colleagues, and carry forward *Terahertz for Life*.



Peter H. Siegel
Chair

2008 Conference Overview

Continuing the three year, three continent, conference rotation sequence started in 1999, IRMMW-THz 2008 takes place in the USA, on the grounds of the California Institute of Technology in Pasadena, California, between September 15th and 19th.

More than 550 abstracts from 33 countries were received and reviewed by this year's Local Organizing Committee (LOC). 462 of these are represented in the accompanying program. Listed are 257 oral talks, 194 posters, 8 plenary speakers and 3 very special opening presentations. Fifty-four invited Keynote speakers, generally appearing at the start of each oral session, will provide both overviews of special areas of interest and summaries of some of their latest work. Plenary speakers with outstanding accomplishments in their respective fields will present extended talks for the entire conference each morning between 9 and 10:30 am in the Caltech Beckman Auditorium. The topic areas span a wide range of interests from medical applications of microwaves to the origins of the universe. These include at least a few subjects that the attendee may not expect to encounter at this conference, apropos to our goals of expanding horizons and promoting cross-disciplinary research. We are privileged to have three influential and prominent members of our scientific community scheduled to open the conference on Monday morning with talks intended to inspire our current endeavors and project our applications into the future. The regular oral talks have been divided into three blocks of four parallel sessions (five on Wednesday) with only a morning block on Friday. Each block is 90 minutes long and contains either 4 or 5 presentations. Keynote talks are scheduled for twenty minutes with five minutes of discussion and regular talks are scheduled for fifteen minutes. The session blocks occupy time slots between 11-12:30, 2:00-3:30 and 4-5:30 pm. Breaks (lunch or refreshments) are placed between each block. Poster sessions are scheduled Monday to Thursday evening from 5:30 until 7 pm and will take place in the serene Dabney Garden, outside the registration and exhibitor's area.

Given the distributed nature of the Caltech campus, special consideration has gone into the flow of events. Attendees should meet each morning at 8:30 am at the large Beckman Auditorium for the day's announcements followed by the Plenary session. At the conclusion of the Plenary session, attendees may flow directly south to the Dabney Garden for a brief refreshments break and then west and slightly south over to the lecture room area surrounding the Bechtel courtyard, where the individual sessions will take place. Four mid-sized lecture halls – Arms, Bridge, Gates and Kerckhoff (plus a fifth, Guggenheim, for the extra Wednesday afternoon session) have been reserved for the oral presentations. After the 11-12:30 morning session, lunch will be available for purchase at Caltech's Chandler and Broad Cafés or any of a number of nearby restaurants.

Following the 2-3:30 pm sessions, refreshments will be available in or around the Bechtel courtyard. At 5:30 pm the poster sessions will begin in the Dabney Garden where refreshments will be available.

In order to help key in talks, locations and times, each paper has both a designated 4 digit number keyed to a folder on the distributed electronic program, as well as a 4 or 5 digit code which gives the day (M,T,W,R,F), the session number (1,2,3,4,5-with Plenary as 1), the location (P-Plenary, A-Arms, B-Bridge, G-Gates, K-Kerckhoff, U-Guggenheim or D-Dabney Garden) and the paper sequence number (1-5 for orals, 1-50 for posters). As an example, M2A1.1126 stands for paper 1126 on Monday, session 2, Arms, first paper in the session. We hope the signage and volunteers from the LOC will help you quickly get accustomed to the logistics.

The conference registration, guest activities desk, exhibitors show and poster sessions will all be located in Dabney Hall and Gardens. Registration opens at 4 pm on Sunday September 14th with a "get to know one another" reception. Badge and program pick up, parking vouchers, late registration, ticket pick-up, late sign-up for guest program events, general information and computer access will be available until 7 pm on Sunday and beginning at 7:30 am on Monday, continuing through Thursday.

On Tuesday evening starting at 7 pm there will be a reception for all registered attendees and guests at the Pacific Asia Museum, one half block north of Colorado Blvd. (historic Route 66) on 46 N. Los Robles street in Old Town Pasadena, approximately 25 minutes by foot from Caltech.

On Thursday evening beginning at 7 pm the conference banquet will be held in the historic Caltech Athenaeum on the southeast corner of the main campus. Following the banquet, a special show with entertainer and Scientific American columnist, Dr. Michael Schermer, founder of the Skeptics Society and publisher of SKEPTIC Magazine, will take place in the Beckman Auditorium. All attendees and their guests are welcome.

Interspersed throughout the week a guest activities program, open to all via pre-registration, will offer afternoon trips to the nearby Huntington Gardens, Library and Museum, the Griffith Observatory and Planetarium, the Norton Simon Museum and the historic Gamble House. A special trip to the fabulous J. Paul Getty Center Museum and gardens in Los Angeles is set for Wednesday between 10:30 am and 4 pm. On Friday afternoon the conference will wind up with special guided tours of JPL starting at 1, 2 and 3 pm for pre-registered attendees.

Both the International Organizing Committee and the Local Organizing Committee sincerely hope this year's conference will leave you with technical ideas, a network of contacts, and memories that will endure for many years to come!

Your hosts,



Conference Organizers

Honorary Chair

Kenneth J. Button

Conference Chair

Peter H. Siegel

The **International Organizing Committee (IOC)** of the now International Conference on Infrared, Millimeter and Terahertz Waves was established in 2000 with the purpose of ensuring continued high-quality annual symposia following in the tradition of the long standing IRMMW conference series. The IOC is composed of a large number of technical experts spanning the topical categories contained within the conference and representing a wide number of participating countries. The current membership and participants in the 2008 conference are:

Martyn Chamberlain, *Durham University, UK*
Jean-Luis Coutaz, *University of Savoie, France*
Bruce Danly, *Naval Research Laboratory, Washington DC, USA*
Gian Piero Gallerano, *ENEA, Dip. Tecnologie Fisiche e Nuovi Materiali, Frascati, Italy*
TV George, *Office of Fusion Energy Sciences, Department of Energy, USA*
Armand Hadni, *University of Nancy, France*
Qing Hu, *Massachusetts Institute of Technology, USA*
Martin Koch, *Technische Universität Braunschweig, Germany*
Jean Leotin, *Laboratoire National des Champs Magnétiques Pulsés, Toulouse, France*
Alexander Litvak, *Inst. of Applied Physics Russian Academy of Sciences, Russia*
Neville Luhmann, *University of California, Davis, USA*
Robert Miles, *University of Leeds, UK*
Daniel Mittleman, *Rice University, USA*
Koji Mizuno, *Tohoku University, Japan (Chair)*
Mitsuhiro Motokawa, *Tohoku University, Japan*
George Neil, *Thomas Jefferson National Accelerator Facility, Virginia, USA*
Gregory Nusinovich, *University of Maryland, USA*
Michael von Ortenberg, *Humboldt University at Berlin, Germany*
Terry Parker, *University of Essex, UK (former Chair)*
Kiyomi Sakai, *NICT/SCAT, Japan*
Xuechu Shen, *Shanghai Institute of Technical Physics, China*
Liu Shenggang, *University of Electronic Science and Technology of China, Sichuan, China*
Peter Siegel, *California Institute of Technology, USA (Vice Chair)*
Richard Temkin, *Massachusetts Institute of Technology, USA (former Chair)*
Manfred Thumm, *Universität Karlsruhe and Forschungszentrum Karlsruhe, Germany*
Minh Quang Tran, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
Ken Wood, *QMC Instruments Ltd., Cardiff University, UK*
Xi-Cheng Zhang, *Rensselaer Polytechnic Institute, USA*

The Local Organizing Committee (LOC), who set-up and ran the conference was staffed by volunteers from the Submillimeter Wave Advanced Technology (SWAT) team at the California Institute of Technology Jet Propulsion Laboratory, including several visiting scientists and students who came for short periods between 2007 and 2008. They are:

Tomas Bryllert (visiting post-doctoral fellow, Sweden)
Goutam Chattopadhyay (JPL)
Ken Cooper (JPL)
Robert Dengler (JPL)
Andy Fung (JPL)
John Gill (JPL)
Nuria Llombart Juan (visiting post-doctoral fellow, Spain)
Hamid Javadi (JPL)
Choonsup Lee (JPL)
Karen Lee (JPL)
Robert Lin (JPL)
Ed Luong (JPL)
Frank Maiwald (JPL)
Agnese Mazzinghi (visiting student, Univ. of Florence, Italy)
Jason McNary (visiting post-doctoral fellow, USA)
Imran Mehdi (JPL)
Alex Peralta (JPL)
David Pukala (JPL)
Lorene Samoska (JPL)
Erich Schlecht (JPL)
Daryoosh Saeedkia (Visiting Associate, Caltech)
Alex Siegel (Caltech undergraduate)
Seth Sin (JPL)
Anders Skalare (JPL)
Jan Stake (visiting Professor, Chalmers Univ., Sweden)
Bertrand Thomas (visiting post-doctoral fellow, France/UK)
John Ward (JPL)

Reviewing assistance was also contributed by Caltech chemistry department students: Rogier Braakman and Matthew Kelley.

Our wonderful web pages, paper and registration databases, and this program book, are the brainchild of Caltech Engineering and Applied Science division staff members Marionne Epalle, Jessica Stephens and Briana Ticehurst.

The incredible guest program was put together and run by volunteers Ronnie Swire Siegel and Dale Yee.

Conference Hosts and Sponsors

This conference could not have been realized without the generous support of several key members of the Caltech and JPL communities. Special thanks are due to Caltech Anna Rosen Professor of Biology and Director of the Caltech Magnetic Resonance Imaging Center, Dr. Scott E. Fraser, Caltech Tomiyasu Professor of Electrical Engineering and Chair of the Division of Engineering and Applied Sciences, Dr. David B. Rutledge, Caltech Vice-President and Director of the Jet Propulsion Laboratory, Dr. Charles Elachi, Caltech President, Dr. Jean-Lou Chameau, Caltech Professor of Physics and Former JPL Chief Scientist, Dr. Thomas Prince, and JPL Instrument, Electronics and Sensors Manager, Dr. Martin Herman.

Financial sponsors include the Microsystems Technology Office of the Defense Advanced Research Program Agency, Dr. Gregory Kovacs, manager, Dr. Mark Rosker Program Manager, Dr. Paul Maki, ONR Liaison, the JPL office of the Chief Scientist, Dr. Dan McCleese, Chief Scientist, and JPL Instruments and Science Data Systems Manager, Dr. Tom Luchik and Deputy Manager Ms. Annette Larson.

Other significant contributors to the conference planning include:

Samantha Westcott, Caltech Grants Manager
Deborah White, Caltech Public Events Manager
Victoria Hidalgo, Caltech Athenaeum
Scott Robbins, Caltech Dining Services
Christina Aguilar, Caltech Travel
Marie Lara, Caltech Housing

A Short History of the Conference Series

The *International Conference on Infrared, Millimeter, and Terahertz Waves* (IRM-MW-THz), is the oldest and largest continuous forum specifically devoted to the field of ultra-high frequency electronics and applications. Appropriate to this year's theme, the first conference in this series was held at the Georgia Institute of Technology in Atlanta in 1974 under the co-sponsorship of the IEEE Society on *Microwave Theory and Techniques* and the *Optical Society of America*. The General Chair was James J. Gallagher of the Georgia Institute of Technology and the Program Chair was Kenneth J. Button of the MIT Francis Bitter National Magnet Laboratory. In his Foreword to the Conference Digest, Ken Button predicted that the Conference would "be the first of a long series because the submillimeter wave specialty has become well-defined and moderately well populated." This prediction was very prescient and the Conference has grown into a respected and self sustaining venue that has now spanned more than three decades, thanks, in large part, to the efforts of Ken Button. The first three meetings (1974, 1976 and 1978) were held bi-annually, but beginning with the 4th meeting in 1979 the conference series was renamed as the International Conference on Infrared and Millimeter Waves (IRMMW) and was held annually. The Conference also began to rotate between locations inside and outside the United States. Ken Button became the conference coordinator, and in 1979 he coupled the conference to the International Journal of Infrared and Millimeter Waves, which published the conference proceedings. The appeal of Florida in the northern hemisphere's winter time anchored the US series to an early December schedule, which remained through the 20th venue in 1995. When the conference was held outside of the United States, it was typically held in the fall or early spring. Between 1974 and 1999, the Conference was held in either the US or Europe, except for two meetings in Japan (1984 and 1994). Starting with the year 2000, when the Conference was held in China, it was decided to institute a three-way rotation for the Conference between Asia, Europe and the United States. The conference date settled to the September time frame as a good compromise between weather conditions in all three regions and lack of overlap with other popular meetings. This ternary schedule remains today and continues with the 2008 conference in the USA, which follows last year's venue in Europe. In 2004 an agreement to couple together the then-independent European based conference series, *International Conference on Terahertz Electronics*, with the IRMMW conference, resulted in the first joint conference held in Karlsruhe, Germany. The formidable series title now became: Joint 29th International Conference on Infrared and Millimeter Waves and 12th International Conference on Terahertz Electronics. The international organizing committee was greatly expanded to encompass both conference communities, and the joint event went through one complete three year cycle before the two series were merged here in Pasadena, California into the *33rd International Conference on Infrared, Millimeter, and Terahertz Waves*.

Past and Future Conferences

Conference Designation	Date	Location
IRMMW-THz 2010 (35th)	September 6-10, 2010	Rome (Italy)
IRMMW-THz 2009 (34th)	September 21-25, 2009	Busan (Korea)
IRMMW-THz 2008 (33rd/16th)	September 15-19, 2008	Pasadena, CA (USA)
IRMMW-THz 2007 (32nd/15th)	September 2-7, 2007	Cardiff (UK)
IRMMW-THz 2006 (31st/14th)	September 18-22, 2006	Shanghai (China)
IRMMW-THz 2005 (30th/13th)	September 19-23, 2005	Williamsburg (USA)
IRMMW2004/THz2004 (29th/12th)	September 27-Oct. 1, 2004	Karlsruhe (Germany)
IRMMW 2003 (28th)	September 29-Oct. 3, 2003	Otsu (Japan)
IRMMW 2002 (27th)	September 22-26, 2002	San Diego, CA (USA)
IRMMW 2001 (26th)	September 10-13, 2001	Toulouse (France)
IRMMW 2000 (25th)	September 12-15, 2000	Beijing (China)
IRMMW 1999 (24th)	September 6-10, 1999	Monterey, CA (USA)
IRMMW 1998 (23rd)	September 7-11, 1998	Colchester (UK)
IRMMW 1997 (22nd)	July 20-25, 1997	Wintergreen (USA)
IRMMW 1996 (21st)	July 14-19, 1996	Berlin (Germany)
IRMMW 1995 (20th)	December 11-14, 1995	Orlando, FL (USA)
IRMMW 1994 (19th)	October 17-20, 1994	Sendai (Japan)
IRMMW 1993 (18th)	September 6-10, 1993	Colchester (UK)
IRMMW 1992 (17th)	December 14-17, 1992	Pasadena, CA (USA)
IRMMW 1991 (16th)	August 26-30, 1991	Lausanne (Switzerland)
IRMMW 1990 (15th)	December 10-14, 1990	Orlando, FL (USA)
IRMMW 1989 (14th)	October 2-6, 1989	Wuerzburg (FR Germany)
IRMMW 1988 (13th)	December 5-9, 1988	Honolulu, HI (USA)
IRMMW 1987 (12th)	December 14-18, 1987	Orlando, FL (USA)
IRMMW 1986 (11th)	October 20-24, 1986	Tirrenia, Pisa (Italy)
IRMMW 1985 (10th)	December 9-13, 1985	Orlando, FL (USA)
IRMMW 1984 (9th)	October 22-26, 1984	Takarazuka (Japan)
IRMMW 1983 (8th)	December 12-17, 1983	Miami Beach, FL (USA)
IRMMW 1982 (7th)	February 14-18, 1983	Marseille (France)
IRMMW 1981 (6th)	December 7-12, 1981	Miami Beach, FL (USA)
IRMMW 1980 (5th)	October 6-10, 1980	Wuerzburg (FR Germany)
SUBMM 1979 (4th)	December 10-15, 1979	Miami Beach, FL (USA)
SUBMM 1978 (3rd)	March 29-April 1, 1978	Guildford (UK)
SUBMM 1976 (2nd)	December 6-11, 1976	Puerto Rico (USA)
SUBMM 1974 (1st)	June 5-7, 1974	Atlanta, GA (USA)

Information for Presenters and Session Chairs

Official Language

The official language of the conference is English, which should be used for all printed material presentations and open discussions.

Information for Presenters

Oral presentations

Each oral session room will contain a computer equipped with a projector. Presenters should only use the session room computer for their presentation.

Presenters should bring a USB Memory-Stick with their presentation files in ppt (MS PowerPoint) or PDF format, suitable for display, and should load and preview their presentations on the conference computers before the session is scheduled to start. (The conference organizers can provide a memory stick for file transfer if needed.)

All presenters should be present 10 minutes before the start of the session, and should immediately inform the session chair of their arrival.

It is very important for the smooth running of the program that speakers do not take more than the allocated time for their presentation. The conference runs parallel sessions and it will assist the delegates in planning the program of talks they wish to see if all sessions run according to the common published schedule.

All sessions are 90 minutes long

Four or five talks are assigned to each session. In most, but not all, sessions there will be an opening 25 minute keynote presentation followed by four 15 minute regular oral talks.

Time allocations for talks is as follows:

Plenary	45 minutes (40 minute presentation plus 5 minutes for discussion)
Invited keynote	25 minutes (20 minute presentation plus 5 minutes for discussion)
Contributed	15 minutes (12 minute presentation plus 3 minutes for discussion)

Each session has 5 extra minutes for speaker change out, introductions and spillover.

Poster Sessions

There will be 90-minute poster sessions Monday, Tuesday, Wednesday and Thursday starting at 5:30 pm. These sessions will take place in the Dabney Garden. All poster presentations have been allocated to one of these evening sessions.

Each poster will have a numbered display area available which is approximately 1 m high and 1 m wide. Materials necessary to mount posters to the display boards will be available.

Posters should be set up by 5:00 pm on the day of the allocated session and be taken down again before noon the following day. The poster sessions will run until 7:00 pm each day. During this time, the presenters are expected to make themselves available at their display board.

Posters not taken down by noon on the day following the session will be removed by conference staff.

Information for Session Chairs

Session Chairs should arrive at the session room at least 15 minutes before the start of the session and should check the attendance and preparedness of all speakers in the session according to the schedule. Since the first author or corresponding author is not always the speaker, the session chair should make sure they know who is to be introduced to present the talk.

It is very important that the sessions run on schedule. Chairs must ensure that speakers do not take up more than their allotted time. The session Chair should warn each speaker when they have 2 minutes in which to finish. The Chair should ask speakers to conclude promptly if they begin to overrun, in which case the period set aside for questions should be shortened so that the next speaker begins on time. Regular oral talks are especially tight this year and have been allocated only 15 minutes with no more than one extra minute for questions or comments. Keynote talks are a maximum of 25 minutes including questions or comments.

Chairs should assure that all speakers are present before the start of the session. If a speaker is not present the chair should immediately inform the room monitor. It is possible that last minute substitutions can be inserted into the program, even at the start of a session.

In contrast to last year, missing speakers will be filled in by sequentially moving forward remaining talks in the session. Session chairs should make this clear to their audiences before the start of the session. Every effort will be made to minimize these program shifts.

Internet Access

Caltech campus will have Guest Access available for wireless enabled laptops in almost all locations. There will also be a few general purpose computers available in the registration area at Dabney Hall. The authentication settings for Guest Access are Open access, No Encryption, no IEEE 802.1x authentication. SSID=Caltech Guest. HTTPS, SSH and limited VPN are supported.

Refreshments

Tea, coffee and soft drinks will be served during session breaks either in Dabney Garden (morning) or Bechtel Mall area (afternoon). Refreshments will also be available at the poster sessions. Several lunch options will be available on campus for attendees on a cash purchase basis.

Exhibition

An exhibition will take place throughout the day from Monday to Thursday in the Dabney Hall area where the posters and registration desks are placed. There will also be a morning coffee break in this same location (following the Plenary session).

Exhibitors

EMCORE Corporation
FEMTOLASERS, Inc.
Loeffler Technology GmbH
Microtech Instruments, Inc.
Picometrix
Springer
TOPTICA Photonics Inc
T-Ray Science, Inc.
Tydex, J.S. Co
Virginia Diodes, Inc.
Wasa Millimeter Wave AB

Guest Program

In addition to the Sunday evening registration reception at the Caltech Dabney Garden, the Tuesday night reception at the Pacific Asia Museum, the Thursday evening banquet at the Caltech Athenaeum and the Friday afternoon tours of JPL, four additional outings have been planned for guests and conference attendees. **Please review the events below and then register at our Guest Program counter in Dabney Hall on September 14 & 15, 2008. Guaranteed placement only if registered before June 30, 2008.**

Huntington Library & Gardens

Monday September 15th, 1:00–5:00 pm

Lunch at the Pasadena Huntington Gardens cafe and/or Tea Room, followed by an afternoon at the fabulous Huntington Library, Art Collections and Botanical Gardens (less than 2 miles from the Caltech campus). The Huntington has 120 acres of exotic plants, a first class art collection and a world renowned collection of rare manuscripts.

TRANSPORTATION

Bus: A conference bus will be available for this event. The bus cost per person is \$10. Please confirm the exact schedule and departure locations at the Guest Program desk on September 14th or 15th in the Dabney Hall registration area.

Tentative schedule:

12:00 Noon Departure from the Hilton Hotel. Drop off at The Huntington Library and Gardens.

12:45 pm Departure from Caltech campus (please visit Guest Program desk in Dabney Hall for exact location). Drop off at The Huntington Library.

3:15 pm Early departure from The Huntington Library parking lot front entrance. Drop off at Caltech and the Hilton Hotel.

4:15 pm Last departure from The Huntington parking lot front entrance. Drop off at Caltech and the Hilton Hotel.

Taxi service: Taxi cabs can be arranged on your own on the day of the trip: www.yellowcabpasadena.com, tel. 1-800-750-4400 or 1-888-248-9222. The approximate cost is \$12.00 one-way from Caltech campus.

Drive your own car: Parking is free.

Admission Fee: \$15.00 per person with payment at the site on the day of entry.

Food: Lunch and snacks are available for purchase at The Huntington Café (no reservations needed). A delightful traditional English Tea (tea, sandwiches, and dessert buffet) is available at the Rose Garden Tea Room at a cost of \$24.95 plus tax. *Seating is limited and must be reserved by phone 1-626-683-8131 well in advance.*

Griffith Observatory

Tuesday September 16th, 1:00–5:00 pm

Afternoon trip to the recently refurbished Griffith Observatory and Samuel Oslen Planetarium (30 minutes by conference bus from Caltech campus).

TRANSPORTATION

Bus: A conference bus will be available for this event. *Guaranteed seating only if registered by June 30, 2008.* The bus cost per person is \$20. Please visit the Guest Program desk on September 14th or 15th in the Dabney Hall registration area for the exact location.

Tentative schedule:

1:00 pm Departure from Caltech (please visit Guest Program desk in Dabney Hall for exact location). Drop off at Griffith Observatory.

4:15 pm Departure from Griffith Observatory. Drop off at Caltech.

Taxi service: Taxi cabs can be arranged on your own on the day of the trip: www.yellowcabpasadena.com tel. 1-800-750-4400 or 1-888-248-9222. The approximate cost is \$40.00 one-way from Caltech campus.

Drive your own car: Beware that parking is limited and may require an uphill walk from available spaces. Parking or meter fees may be imposed.

Admission Fee: Admission to the museum is free. The planetarium show cost is \$7.00 per person and tickets must be purchased on site. We plan to make the 2:45 pm showing. *Seating may be limited.*

Food: Lunch and snacks can be purchased at the Griffith Observatory Cafeteria.

Getty Center of Los Angeles

Wednesday September 17th, 10:30 am – 4:00 pm

A fabulous trip to the multibillion dollar Getty Center of Los Angeles with breathtaking 360 degree views, unprecedented architecture and gardens, and a large collection of western art spanning the middle ages to present day. The Getty is approximately 45 minutes from Caltech campus and the trip will depart at 10:00 am from Caltech campus with pick up at the Hilton Hotel and return to Caltech around 4 pm.

TRANSPORTATION

Bus: A conference bus will be available for this event. To guarantee seating, please sign up on the trip registration page. The bus can take 55 people maximum. The bus cost per person is \$25 round-trip. Please confirm the exact schedule and pick up locations at the Guest Activities desk on September 14th or 15th in the Dabney Hall registration area.

Tentative schedule:

10:00 am Pick up will be from Caltech and the conference hotels. You must reserve a pick up location at the trip reservation page or at the Guest Activities desk on September 14/15.

3:00 pm Departure from The Getty Center with drop offs at the Sheraton, Westin, and Hilton hotels and Caltech at 4:00 pm.

Taxi service: Taxi service: Taxi cabs can be arranged on your own on the day of the trip: www.yellowcabpasadena.com tel. 1-800-750-4400 or 1-888-248-9222. The approximate cost is \$80.00 one-way.

Drive your own car: Parking is \$8.00.

Admission Fee: Admission to the Getty is free.

Food: A number of low and higher cost restaurants and cafés are open at the Getty for lunch and snacks.

Norton Simon Museum of Art and the Gamble House

Thursday September 18th, 12:30–2:00/4:00 pm

A double treat with visits to the world-class Norton Simon Museum of Art and the historic Gamble House (Greene and Greene, c. 1908) celebrating its 100th anniversary. Both are located in Pasadena only 10 minutes by car from Caltech campus. For those who want to squeeze in one activity without interfering with the technical sessions, a return bus from the Norton Simon will bring attendees back to the campus in time for the Thursday afternoon session. The Gamble House can only be visited by reserving a one hour tour starting at 3:30 pm. *Space is limited to the first 45 people who sign up.*

TRANSPORTATION

Bus: A conference bus will be available for this event. *Guaranteed seating is available only to those registered by June 30, 2008.* The bus cost per person is \$15. Please confirm the exact schedule and pick up locations at the Guest Program desk on September 14th or 15th in the Dabney Hall.

Tentative schedule:

12:00 noon Departure from the Hilton Hotel. Drop off at the Norton Simon Museum.

12:45 pm Departure from Caltech. Drop off at the Norton Simon Museum.

1:45 pm, 2:30 pm, 3:15 pm, 4:30 pm Departures from the Norton Simon Museum, dropping off at Caltech and the Hilton Hotel. The 3:15 pm pick up at Norton Simon will also drop off visitors who have 3:30 pm tour reservations at the Gamble House. The 4:30 pm bus will pick up Gamble House visitors after their tour and return them to Caltech and the Hilton Hotel.

Taxi service: Taxi cabs can be arranged on your own on the day of the trip: www.yellowcabpasadena.com, tel. 1-800-750-4400 or 1-888-248-9222. The approximate cost is \$13.00 one-way from Caltech campus.

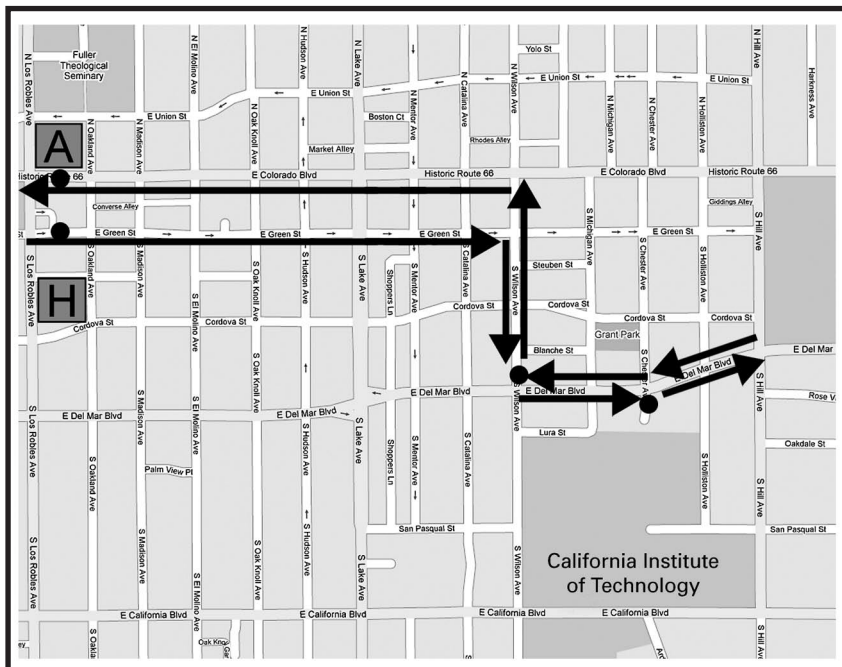
Drive your own car: Parking is free.

Admission Fee: Norton Simon Museum: \$8.00 per person can be purchased at the museum. Gamble House Tour: \$12.50 per person, limited to the first 45 people who reserve before June 30, 2008.

Food: Lunch and snacks can be purchased at a small lunch counter at the Norton Simon Museum. There is no food available at The Gamble House.

Pasadena ARTS Bus Route

ARTS Bus Route



A Pacific Asia Museum & the Pasadena Museum of California Art

 Hilton Pasadena

 Pasadena ARTS Bus Route 10. Fare = \$0.50/ride.
 Approximately every 15 minutes 6 am – 8 pm

Program at a Glance

Sunday, September 14, 2008

4:00 - 6:30 pm Early Registraton & Reception Dabney Garden

Monday, September 15, 2008

7:30 - 8:30 am Registration & Coffee Dabney Garden

Welcome and Plenary Talks M1

Chair: Peter Siegel

Monday 8:30 - 10:30 am

Beckman Auditorium

Chair	Michael Griffin	Charles Elachi	Kathie Olsen
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10:30 - 11:00 am Group Photo

Beckman Auditorium

10:30 - 11:00 am Coffee Break

Dabney Garden

Monday 11:00 - 12:30 pm

Sessions M2

Gyrotrons 1	Applications in Biology and Medicine 1	Imaging 1	Sources 1
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

12:30 - 2:00 pm Lunch Break
By-Laws Luncheon

Various Campus locations
Library Room, Athenaeum
(by invitation)

1:00 - 5:00 pm Guest Program

Huntington Library & Garden

Monday 2:00 - 3:30 pm

Sessions M3

Radar and Communications	Spectroscopy and Instrumentation: Systems	Imaging 2	Detectors 1
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

3:30 - 4:00 pm Coffee Break

Bechtel Mall

Monday 4:00 - 5:30 pm

Sessions M4

Novel Devices & Applications 1	Materials: Semiconductors & Superconductors	Ultrafast Chemistry and Physics	Photomixers
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

Poster Session M5

Monday 5:30 - 7:00 pm

Dabney Garden

Tuesday, September 16, 2008

7:45 - 8:45 am Registration & Coffee Dabney Garden

Announcements

Tuesday 8:45 - 9:00 am Beckman Auditorium

Plenary Talks T1 Chair: Koji Mizuno

Tuesday 9:00 - 10:30 am Beckman Auditorium

Arye Rosen

David Rutledge

10:30 - 11:00 am Coffee Break Dabney Garden

Tuesday 11:00 - 12:30 pm Sessions T2

Gyrotrons 2	Applications in Biology and Medicine 2	Imaging 3	Materials Characterization and Manufacturing
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

12:30 - 2:00 pm Lunch Break
IOC luncheon
Various Campus locations
Library Room, Athenaeum
(by invitation)

1:00 - 5:00 pm Guest Program Griffith Observatory

Tuesday 2:00 - 3:30 pm Sessions T3

Electron Sources	Spectroscopy and Instrumentation: Time Domain	Imaging 4 & Analysis	Materials: Periodic & Meta 1
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

3:30 - 4:00 pm Coffee Break Bechtel Mall

Tuesday 4:00 - 5:30 pm Sessions T4

FELs and High Power	THz Instruments	QCL 1	Novel Devices and Components 1
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

Poster Session T5

Tuesday 5:30 - 7:00 pm Dabney Garden

7:00 - 9:00 pm Reception Pacific Asia Museum

Wednesday, September 17, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Wednesday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks W1

Chair: Xi-Cheng Zhang

Wednesday 9:00 - 10:30 am

Beckman Auditorium

Frank C. De Lucia

Daniel M. Mittleman

10:30 - 4:00 pm

Guest Program

Getty Center of Los Angeles

10:30 - 11:00 am

Coffee Break

Dabney Garden

Wednesday 11:00 - 12:30 pm

Sessions W2

THz Astrophysics & Atmospheric Instrumentation 1

Applications in Biology & Medicine 3

Imaging 5

Antennas

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

12:30 - 2:00 pm

Lunch Break

Various Campus locations

Button Prize Committee

Library Room, Athenaeum

luncheon

(by invitation)

Wednesday 2:00 - 3:30 pm

Sessions W3

THz Astrophysics & Atmospheric Instrumentation 2

Spectroscopy and Instrumentation: Components

QCL 2 & Sources

Materials: Periodic & Meta 2

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Wednesday 4:00 - 5:30 pm

Sessions W4

THz Photonics

Material Properties: Organic

Mixers

Detectors 2

High Power and Gyrotrons 3

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

101 Guggenheim

Poster Session W5

Wednesday 5:30 - 7:00 pm

Dabney Garden

7:00 - 9:00 pm

IOC/LOC Dinner

La Canada (by invitation)

Thursday, September 18, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Thursday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks R1

Chair: Terry Parker

Thursday 9:00 - 10:30 am

Beckman Auditorium

Alexander Litvak

Maurizio Seracini

10:30 - 11:00 am

Coffee Break

Dabney Garden

Thursday 11:00 - 12:30 pm

Sessions R1

Spectroscopy: Novel
Techniques

Applications in Biology
and Medicine 4

Imaging 6

Heterodyne
Receivers

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

12:30 - 2:00 pm

Lunch Break
JIRMMW Editorial
Board luncheon

Various Campus locations
Library Room, Athenaeum
(by invitation)

12:30 - 2/4:00 pm

Guest Program

Norton Simon & Gamble House

Thursday 2:00 - 3:30 pm

Sessions R3

Transmission
Lines

Materials: Periodic
and Meta 3

Sources 2

Advanced Components
and Instruments

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Thursday 4:00 - 5:30 pm

Sessions R4

Gyrotrons 4

Materials: Periodic
and Meta 4

Sources 3

Applications in Security
and Defense

155 Arms

201 E. Bridge

22 Gates

119 Kerckhoff

Poster Session R5

Thursday 5:30 - 7:00 pm

Dabney Garden

7:00 - 9:00 pm

Banquet

Athenaeum

9:00 - 9:15 pm

Special Thanks and
Presentations

Beckman Auditorium

9:15 - 10:00 pm

Special Show by
Michael Shermer

Beckman Auditorium

Friday, September 19, 2008

7:45 - 8:30 am	Coffee	Dabney Garden
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Closing Remarks and Announcements	
Friday 8:30 - 9:00 am	Beckman Auditorium

Plenary Talks F1		Chair: Rick Temkin
Friday 9:00 - 10:30 am		Beckman Auditorium
Andrew Lange	Robert G. Griffin	

10:30 - 11:00 am	Coffee Break	Dabney Garden
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Friday 11:00 - 12:30 pm		Sessions F2	
Gyrotrons 5	Detectors 3	Microfabrication	Instruments and Techniques
155 Arms	201 E. Bridge	22 Gates	119 Kerckhoff

12:30 - 5:00 pm	JPL Tours	(by pre-registration only)
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Conference Program

Sunday, September 14, 2008

4:00 - 6:30 pm Early Registraton & Reception Dabney Garden

Monday, September 15, 2008

7:30 - 8:30 am Registration & Coffee Dabney Garden

Welcoming Remarks and Announcements

Monday 8:30 - 9:00 am

Beckman Auditorium

Peter Siegel

Plenary Talks M1P

Chair: Peter Siegel

Monday 9:00 - 10:30 am

Beckman Auditorium

M1P1.1783 The Magic of Science

Michael Griffin

National Aeronautics and Space Administration, Washington, DC, USA

Corresponding author: Michael Griffin, Michael.D.Griffin@nasa.gov

M1P2.1780 Robotic Space and Earth Science 2020

Charles Elachi

JPL, Pasadena, CA, USA

Corresponding author: Charles Elachi, charles.elachi@jpl.nasa.gov

M1P3.1782 The National Science Foundation: Transforming Life at Disciplinary Boundaries

Kathie Olsen

National Science Foundation, Washington, DC, USA

Corresponding author: Kathy Olsen, kolsen@nsf.gov

10:30 - 11:00 am Group Photo

Beckman Auditorium

10:30 - 11:00 am Coffee Break

Dabney Garden

Session M2A: Gyrotrons 1

Chair: Manfred Thumm

Monday 11:00 - 12:30 pm

Room 155 Arms

M2A1.1126 Generation of kW Level THz Radiation by the Gyrotron with Pulsed Magnetic Field [keynote]

Mikhail Yu. Glyavin, Alexey G. Luchinin

Institute of Applied Physics RAS, Nizhny Novgorod, Russia

Corresponding author: Mikhail Glyavin, glyavin@appl.sci-nnov.ru

M2A2.1154 Frequency-Quadrupling Gyrotrons

Gregory S. Nusinovich¹, Oleksandr V. Sinitsyn¹, Andrey V. Savilov², John Pasour³, Alexander N. Vlasov⁴, Baruch Levush³, Khan T. Nguyen⁵, Thomas M. Antonsen, Jr.¹

¹IREAP, University of Maryland, College Park, USA

²Institute of Applied Physics, N. Novgorod, Russia

³Naval Research Laboratory, Washington D. C., USA

⁴Science Applications International Corporation, McLean, USA

⁵Beam-Wave Research, Inc., Bethesda, USA

Corresponding author: Gregory S. Nusinovich, gregoryn@glue.umd.edu

M2A3.1267 THz Gyrotrons - FU CW Series for High Power THz Technologies

Toshitaka Idehara, Teruo Saito, Isamu Ogawa, Seitaro Mitsudo, Yoshinori Tatematsu
Research Center for Development of Far Infrared Region, University of Fukui, Fukui-shi, Japan

Corresponding author: Toshitaka Idehara, idehara@fir.fukui-u.ac.jp

M2A4.1449 Terahertz High-Harmonic Gyrotrons and Gyro-Multipliers **Ilya V. Bandurkin, Vladimir L. Bratman, Yuriy K. Kalynov, Vladimir N. Manuilov, Sergey V. Samsonov, Andrey V. Savilov**

Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia

Corresponding author: Vladimir L. Bratman, bratman@appl.sci-nnov.ru

M2A5.1227 Demonstration of a THz Pulse Gyrotron

Michael E Read¹, Jeff Neilson¹, Gregory Nusinovich², Philipp Borchard³, Lawrence Ives¹

¹Calabazas Creek Research, San Mateo, USA

²Institute for Research in Electronics and Applied Physics, College Park, USA

³Consultant, San Francisco, USA

Corresponding author: Michael E Read, mike@calcreek.com

Session M2B: Applications in Biology & Medicine 1 Chair: Gian Piero Gallerano

Monday 11:00 - 12:30 pm

Room 201 E.Bridge

M2B1.1204 The THz Dance of Protein with Water [keynote]

Martina Havenith¹, David Leitner², Martin Gruebele³

¹Physical Chemistry II, Ruhr University Bochum, Bochum, Germany

²Department of Chemistry, University of Nevada, Reno, USA

³Department of Chemistry and Center for Biophysics and Computational Biology, University of Illinois, Urbana, USA

Corresponding author: Martina Havenith, martina.havenith@rub.de

M2B2.1457 Single Living Cell Analysis by THz BioMEMS

Anthony Treizebre¹, Bertrand Bocquet¹, Dominique Legrand², Joel Mazurier²

¹Institute of Electronic, Microelectronic and Nanotechnology, University of Lille, Villeneuve d'Ascq, France

²Structural and Functional Glycobiology Unit, University of Lille, Villeneuve d'Ascq, France

Corresponding author: Bertrand Bocquet, bertrand.bocquet@univ-lille1.fr

M2B3.1277 Characterizing Rat Tissue Samples Using Terahertz Pulsed Imaging

Shengyang Huang¹, Yixiang Wang², David Kawai Yeung², Vincent P Wallace³, Yuanting Zhang⁴, Emma Pickwell-MacPherson¹

¹Dept. of Electronic Engineering, Chinese Univ. of Hong Kong, Hong Kong, China

²Department of Diagnostic Radiology and Organ Imaging, Chinese University of Hong Kong, Hong Kong, China

³School of Electrical, Electronic and Computer Engineering, The University of Western Australia, Australia

⁴Shenzhen Inst. of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China

Corresponding author: Emma Pickwell-MacPherson, emma@ee.cuhk.edu.hk

M2B4.1397 Using Terahertz Pulsed Imaging (TPI) to Identify Colonic Pathology

George P Reese¹, Caroline Reid², Robert Goldin³, My-Anh Tran-Dang³, Anthony J Fitzgerald⁴, Paris Tekkis¹, Vincent P Wallace⁵

¹Imperial College, London, UK

²University College, London, UK

³St. Mary's Hospital, London, UK

⁴TeraView Ltd., Cambridge, UK

⁵University of Western Australia, Crawley, Australia

Corresponding author: Vincent P. Wallace, vwallace@ee.uwa.edu.au

M2B5.1117 Numerical and Experimental Approaches to Millimeter-Wave Dosimetry for in vitro Experiments

Maxim Zhadobov¹, Ronan Sauleau¹, Yves Le Dréan³, Stanislav I. Alekseev², Marvin C. Ziskin²

¹Institute of Electronics and Telecommunications of Rennes, UMR CNRS 6164, University of Rennes 1, Rennes, France

²Center for Biomedical Physics, Temple University, Philadelphia, USA

³Intracellular Protein Homeostasis laboratory, University of Rennes 1, Rennes, France

Corresponding author: Maxim Zhadobov, zhadobov@temple.edu

Session M2G: Imaging 1

Chair: Henry van Driel

Monday 11:00 - 12:30 pm

Room 22 Gates

M2G1.1719 Terahertz Near-Field Measurements of Small Metal Structures [keynote]

Aurè J. Adam¹, Joseph R. Knab¹, Michael Nagel², Min A. Seo³, Dai S. Kim³, Paul C. Planken¹

¹TU Delft, Delft, Netherlands

²RWTH Aachen University, Aachen, Germany

³Seoul National University, Seoul, Korea

Corresponding author: Aurele J.L. Adam, a.j.l.adam@tudelft.nl

M2G2.1574 Nanoscale Infrared and THz Mapping of Conductivity

Fritz Keilmann, Rainer Hillenbrand

Max-Planck-Institut für Biochemie, Martinsried, Germany

Corresponding author: Fritz Keilmann, keilmann@biochem.mpg.de

M2G3.1680 On-Chip Near-Field THz Imaging Probe Integrated with a Detector

Yukio Kawano, Koji Ishibashi

RIKEN (The Institute of Physical and Chemical Research), 2-1 Hirosawa, Wako, Japan

Corresponding author: Yukio Kawano, ykawano@riken.jp

M2G4.1363 Sub-Wavelength Imaging of Terahertz Dielectric Permittivity Using Planar Resonant Circuits

Matthew B Byrne, John E Cunningham, Suraj P Khanna, Mark R Stringer, Christopher D Wood, Edmund H Linfield, Alexander G Davies

University of Leeds, Leeds, UK

Corresponding author: John Cunningham, eenjec@leeds.ac.uk

M2G5.1491 Terahertz Wave Focusing at Localized Surface Plasmon Resonance

M. A. Seo¹, A. J. L. Adam², J. H. Kang³, K. J. Ahn¹, J. W. Lee¹, Q. H. Park³, P. C. M. Planken², D. S. Kim¹

¹*Seoul National University, Seoul, Korea*

²*Delft University, Delft, Netherlands*

³*Korea University, Seoul, Korea*

Corresponding author: D. S. Kim, dsk@phya.snu.ac.kr

Session M2K: Sources 1

Chair: Antti Raisanen

Monday 11:00 - 12:30 pm

Room 119 Kerchoff

M2K1.1731 Graphene Terahertz Sources and Amplifiers [keynote]

Farhan Rana, Paul A George, Jared H Strait, Jahan Dawlaty

Cornell University, Ithaca, USA

Corresponding author: Farhan Rana, fr37@cornell.edu

M2K2.1668 Milliwatt THz Average Output Power from a Photoconductive Switch

Elliott R. Brown¹

¹*University of California, Santa Barbara, Santa Barbara, USA*

²*Physical Domains, LLC, Glendale, USA*

Corresponding author: Elliott R. Brown, drerbrown@earthlink.net

M2K3.1195 Highly Efficient Terahertz Generation via a Continuously Phase Matched Difference Frequency Generation in a Nested Waveguide Structure

Leon McCaughan¹, Chad Staus¹, Thomas F. Kuech²

¹*University of Wisconsin - Dept. of Electrical & Computer Engineering, Madison, USA*

²*University of Wisconsin - Dept. of Chemical & Biological Engineering, Madison, USA*

Corresponding author: Leon McCaughan, mccaughan@engr.wisc.edu

M2K4.1337 Micro Lens Coupled Large Area Photoconductive Switch for Powerful THz Emission

Gabor Matthäus¹, Ricoh Hohmuth², Martin Voitsch², Wolfgang Richter², Stefan Riehemann³, Gunther Notni³, Stefan Nolte¹, Andreas Tünnermann³

¹Friedrich-Schiller-University Jena, Institute of Applied Physics, Jena, Germany

²BATOP GmbH, Jena, Germany

³Fraunhofer Institute for Optics and Precision Engineering, Jena, Germany

Corresponding author: Gabor Matthäus, matthaeus@iap.uni-jena.de

M2K5.1259 Terahertz Planar Varactor Sideband Generator Array

Haiyong Xu¹, Zhiyang Liu², Lei Liu¹, Jeffrey L. Hesler³, Robert M. Weikle¹

¹University of Virginia, Charlottesville, USA

²Tyco Electronics, Lowell, USA

³Virginia Diodes, Inc., Charlottesville, USA

Corresponding author: Haiyong Xu, hx4g@virginia.edu

12:30 - 1:30 pm

Lunch Break

Dabney Garden

By-Laws luncheon

Library Room, Athenaeum
(by invitation)

1:00 - 5:00 pm

Guest Program

Huntington Library & Garden

Session M3A: Radar and Communications

Chair: Bruce Danly

Monday 2:00 - 3:30 pm

Room 155 Arms

M3A1.1451 10-Gbit/s Wireless Link Using 120-GHz-Band MMIC Technologies [keynote]

Naoya Kukutsu¹, Akihiko Hirata¹, Toshihiko Kosugi², Hiroyuki Takahashi¹, Ryo-ichi Yamaguchi¹, Tadao Nagatsuma³, Yuichi Kado¹

¹NTT Microsystem Integration Laboratories, Atsugi, Japan

²NTT Photonics Laboratories, Atsugi, Japan

³Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

Corresponding author: Naoya Kukutsu, kukutsu.naoya@lab.ntt.co.jp

M3A2.1369 A High Performance 220-GHz Broadband Experimental Radar

Helmut Essen¹, Stefan Stanko¹, Rainer Sommer¹, Alfred Wahlen¹, Ralf Brauns¹, Jörn Wilcke¹, Winfried Johannes¹, Axel Tessmann², Michael Schlechtweg²

¹FGAN-FHR, Wachtberg, Germany

²Fraunhofer IAF, Freiburg, Germany

Corresponding author: Helmut Essen, dr_essen@t-online.de

M3A3.1342 300 GHz Channel Measurement and Transmission System

Christian Jastrow¹, Klaus Münter¹, Radoslaw Piesiewicz², Thomas Kürner³, Martin Koch⁴, Thomas Kleine-Ostmann¹

¹Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

²Create-Net, Broadband & Wireless Area, Trento, Italy

³Institut für Nachrichtentechnik, TU Braunschweig, Braunschweig, Germany

⁴Institut für Hochfrequenztechnik, TU Braunschweig, Braunschweig, Germany

Corresponding author: Thomas Kleine-Ostmann, thomas.kleine-ostmann@ptb.de

M3A4.1220 A G-Band Multi-Chip MMIC T/R Module for Radar Applications

Lorene A Samoska, David M Pukala, Mary Soria, Gregory Sadowy

Jet Propulsion Laboratory, Pasadena, USA

Corresponding author: Lorene A Samoska, lorene.samoska@jpl.nasa.gov

M3A5.1298 Real-time, Terahertz Impulse Radar Based on Asynchronous Optical Sampling

Takeshi Yasui, Yasuhiro Kabetani, Shuko Yokoyama, Tsutomu Araki

Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

Corresponding author: Takeshi Yasui, t-yasui@me.es.osaka-u.ac.jp

Session M3B: Spectroscopy & Instrumentation: Systems Chair: Brian Drouin

Monday 2:00 - 3:30 pm

Room 201 E. Bridge

M3B1.1518 Progress Towards a 2.5-THz Solid State Heterodyne Receiver with Quantum Cascade Laser and Hot Electron Bolometric Mixer [keynote]

Heinz-Wilhelm Hübers¹, Heiko Richter¹, Alexei D.Semenov¹, Sergey G. Pavlov¹, Lukas Mahler², Alessandro Tredicucci², Harvey E. Beere³, David A. Ritchie³, Kosteal Il'in⁴, Michael Siegel⁴

¹*Institute of Planetary Research, German Aerospace Center (DLR), Berlin, Germany*

²*NEST CNR-INFM and Scuola Normale Superiore, Pisa, Italy*

³*Cavendish Laboratory, University of Cambridge, Cambridge, UK*

⁴*Institute of Micro- and Nano-Electronic Systems, University of Karlsruhe, Karlsruhe, Germany*

Corresponding author: Heinz-Wilhelm Hübers, heinz-wilhelm.huebers@dlr.de

M3B2.1748 Spectroscopic Detection, Fundamental Limits and System Considerations

John C Pearson, Ken B Cooper, Brian J Drouin

JPL, Pasadena, USA

Corresponding author: John C Pearson, john.c.pearson@jpl.nasa.gov

M3B3.1193 Single Channel- and Real-Time Imaging Attenuated Total Reflection Spectrometers for THz Range

Boris A Knyazev¹, Valery S Cherkassky², Nikolay GGavrilov¹, Vasily V Gerasimov², Alexander M Gonchar³

¹*Budker Institute of Nuclear Physics SB RAS, Novosibirsk, Russia*

²*Novosibirsk State University, Novosibirsk, Russia*

³*Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia*

Corresponding author: Boris A Knyazev, knyazev@phys.nsu.ru

M3B4.1743 Double Effective Band-Pass Submm-Filters Based on Anisotropic Resonant Meshes

Sergey A Kuznetsov¹, Yury G Goncharov², Boris PGorshunov², Igor E Spektor², Alexandr V Gelfand³, Nina I Fedorinina³

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M3B5.1197 Coherent Anti-Stokes Raman Scattering Spectroscopy in Terahertz Region Using Chirped Optical Pulses

Masahiko Tani¹, Toshiyuki Koizumi², Hisashi Sumikura³, Mariko Yamaguchi², Masanori Hangyo²

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Session M3G: Imaging 2

Chair: Mischa Bonn

Monday 2:00 - 3:30 pm

Room 22 Gates

M3G1.1513 Fast Active THz Camera with Range Detection by Frequency Modulation [keynote]

Christian am Weg¹, Wolff von Spiegel¹, Bernd Hils¹, Torsten Löffler¹, Ralf Henneberger², Ralph Zimmermann², Hartmut Roskos¹

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M3G2.1299 Confocal THz Imaging Using a Gas Laser

Mohammed A. Salhi, Martin Koch

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M3G3.1464 Nanoparticle Contrast Agents for Terahertz Medical Imaging

Seung Jae Oh¹, Inhee Maeng², Hee Jun Shin², Jaewon Lee³, Jinyoung Kang³, Seunjoo Haam³, Yong-Min Huh⁴, Jin-suck Suh⁴, Joo-Hiuk Son²

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M3G4.1681 Terahertz Imaging with a Two-dimensional Array Detector Based on Superconducting Tunnel Junctions

Seiichiro Ariyoshi¹, Chiko Otani¹, Adrian Dobroiu¹, Hiromi Sato², Tohru Taino³, Hiroshi Matsuo⁴, Hirohiko M. Shimizu⁵

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M3G5.1585 Three-Dimensional Interferometric Imaging at Terahertz Frequencies Using Three-Dimensional Spiral Array

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Session M3K: Detectors 1

Chair: Bob Miles

Monday 2:00 - 3:30 pm

Room 119 Kerckhoff

M3K1.1646 Terahertz Resonances and Bolometric Response of a Single-Walled Carbon Nanotube [keynote]

Daniel F Santavicca, Daniel E Prober

Yale University, New Haven, USA

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M3K2.1600 The Response Rate of Room Temperature Terahertz InGaAs-based Bow-Tie Detector with Broken Symmetry

Irmantas Kasalynas¹, Dalius Seliuta¹, Rimantas Simniskis¹, Vincas Tamosiunas¹, Viktoras Vaicikauskas², Ignas Grigelionis¹, Ramunas Nedzinskas¹, Klaus Kohler³, Gintaras Valusis¹

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M3K3.1618 Long Wave Infrared Detection Using Dipole Antenna-Coupled Metal-Oxide-Metal Diodes

Jeffrey A Bean, Badri N Tiwari, Gergo Szakmány, Gary H Bernstein, Patrick Fay, Wolfgang Porod

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M3K4.1676 The Development of Quasi-Optical THz Detectors

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M3K5.1148 Room Temperature Terahertz Detection Based on Plasma Resonance of Electrons in an Antenna-Coupled GaAs MESFET

Sangwoo Kim¹, Jeremy D. Zimmerman², Paolo Focardi³, Arthur C. Gossard², Dong Ho Wu⁴, Mark S. Sherwin¹

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session M4A: Novel Devices and Applications 1**Chair: Jean Leotin****Monday 4:00 - 5:30 pm****Room 155 Arms****M4A1.1421** Micro-fabricated High-impedance Surface for Millimeter Wave Beam Steering Applications [keynote]**Dmitry V. Chicherin¹, Sergey Dudorov¹, Mikael Sterner², Joachim Oberhammer², Antti V. Raisanen¹**¹*TKK - Helsinki University of Technology, Espoo, Finland*²*KTH - Royal Institute of Technology, Stockholm, Sweden*

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M4A2.1511 Terahertz Beam Steering and Frequency Tuning by Using Difference Frequency Mixing**Ken-ichiro Maki¹, Takayuki Shibuya², Chiko Otani¹, Kodo Kawase²**¹*Terahertz Sensing and Imaging Laboratory, RIKEN, Sendai, Japan*²*EcoTopia Science Institute, Nagoya University, Nagoya, Japan*

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M4A3.1372 Investigation of THz Thermal Emission from Electromagnetic Crystals**Hao Xin, Ziran Wu, Richard W Ziolkowski***University of Arizona, Tucson, USA*

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M4A4.1364 Imaging Fourier Transform Spectroscopy Using an Un-cooled Microbolometer Array**G. V. Sudhakar Rao, Peter Davis, Brad Gom***Blue Sky Spectroscopy, Lethbridge, Canada*

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M4A5.1617 SU-8 Micromachining process for Millimeter and Submillimeter-wave Waveguide Circuit Fabrication**Charlie H Smith,III, N Scott Barker***University of Virginia, Charlottesville, USA*

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Session M4B: Materials: Semiconductors & Superconductors**Chair: Heinz-Wilhelm Hübers****Monday 4:00 - 5:30 pm****Room 201 E.Bridge****M4B1.1136** Spectroscopy of THz Radiation Induced by Impact Ionization of Shallow Acceptors in Ge**Alexander V Andrianov, Alexey O Zakharin, Nikolay N Zinovev***A.F. Ioffe Physical Technical Institute, Saint Petersburg, Russia*

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M4B2.1458 Terahertz Vibrational Absorption Resonances Observed Using On-chip Terahertz Circuits

Matthew B Byrne, John E Cunningham, Suraj P Khanna, Andrew D Burnett, Katarzyna Tych, Mark R Stringer, Edmund H Linfield, Alexander G Davies

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M4B3.1560 Generation of High Stable Wide-Range THz Radiation for Precise Frequency Measurements

Vladimir L Vaks¹, Alexander N Panin¹, Dmitry GPaveliev², Yuriy I Koshurinov²

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M4B4.1744 High-Resolution THz Transmission and Birefringence Measurements in Ferroelectric LiNbO₃

Elliott R Brown¹, Joseph R Demers², Ronald T Logan, Jr.², K K Wong²

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M4B5.1582 Using Terahertz Time-Domain-Spectroscopy to Follow the Kinetics and Mechanism of Cocrystal Formation

Edward P. J. Parrott¹, Axel Zeitler¹, Tomislav Friscic³, Graeme M. Day³, Michael Pepper², William Jones³, Lynn F. Gladden¹

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Session M4G: Ultrafast Chemistry and Physic

Chair: Martin Koch

Monday 4:00 - 5:30 pm

Room 22 Gates

M4G1.1260 Ultrafast Intraband Relaxation in Colloidal Quantum Dots [keynote]

Mischa Bonn¹, Euan Hendry², Joep JH Pijpers¹

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M4G2.1420 Ultrafast Electron Relaxation Dynamics In Laser-Ionized Gases Observed with Time-Resolved THz Spectroscopy

Christian Frischkorn¹, Tobias Kampfrath¹, Luca Perfetti¹, Petra Tegeder¹, Martin Wolf¹, Dirk O. Gericke²

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M4G3.1160 Narrow-Band Terahertz Pulses Generated by Difference-Frequency Mixing of CO2 Laser Lines

Sergei Tochitsky, Chieh Sung, Chan Joshi

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M4G4.1654 Dielectric Response Of Suspended Nucleotides At Terahertz Frequencies

Paul M Glancy, Ward P Beyermann

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M4G5.1742 Using Coplanar Wave Guides To Excite Molecular Motions In The Frequency Range Of 10-1000 GHz

Klaus Attenkofer¹, Nalaka Kodituwakku¹, Steve Kross¹, Thomas Nielsen², Martin M Nielsen², David M Tiede¹, Michael Goerlich¹, Bernhard Adams¹

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Session M4K: Photomixers

Chair: Aurele Adam

Monday 4:00 - 5:30 pm

Room 119 Kerckhoff

M4K1.1721 THz Emission from Transient Electrical Currents Injected into Semiconductors via Optical Quantum Interference [keynote]

Markus M Betz, Jean-Michel Ménard, Louis Costa, Marko Spasenovic, Christian Sames, Alan D Bristow, Henry M van Driel

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M4K2.1199 High-power and Broadband Sub-terahertz Wave Generation Using a J-band Photomixer Module with Rectangular-waveguide Output Port

Atsushi Wakatsuki¹, Tomofumi Furuta¹, Yoshifumi Muramoto¹, Toshihide Yoshimatsu², Hiroshi Ito³

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M4K3.1580 Integrated Horn Antenna for Terahertz Photomixing in LTG-GaAs

Emilien F Peytavit¹, Jean F Lampin¹, Tahsin Akalin¹, Francis Mollot¹, Francis Hindle², Chun Yang², Gael Mouret²

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M4K4.1452 CW Generation up to 2 THz by Ion-Irradiated InGaAs Photomixer Driven at 1.55 μm Wavelengths

Juliette Mangeney¹, P. Crozat¹, A. Merigault¹, K. Blary², J.F. Lampin²

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M4K5.1383 THz Source Based on Resonantly-Enhanced Difference Frequency Generation in Periodically-Inverted GaAs

Konstantin L Vodopyanov¹, Joe E Schaar¹, Paulina SKuo¹, Martin M Fejer¹, Anjie Lin¹, James S Harris¹, Walter C Hurlbut², Vlad G Kozlov², David Bliss³, Candace Lynch³

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Poster Session M5D

Monday 5:30 - 7:00 pm

Dabney Garden

M5D1.1326 FEL THz Irradiation Approach for the Biochip Production Standardization

Sergey E Peltek¹, Tatiana N Goryachkovskaya¹, Viatcheslav AMordvinov¹, Vasily M Popik², Mikhail A Scheglov², Alexander S Kozlov³, Sergey B Malyshkin³, Alexander K Petrov³

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M5D2.1514 Terahertz Imaging of Paraffin-embedded Epithelial Cell of Rat using Pulsed and CW THz Systems

O Kwon¹, Y.D. Joo¹, H.J. Choi², D.S. Kim¹, Y.H. Kim¹, J.I. Kim³, S.G. Jeon³, Y.S. Jin³, G.S. Park¹

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M5D3.1665 Measurement and Application of Incoherent Terahertz Scattering Using Time-Domain Spectroscopy

M. Hassan Arbab¹, Dale P Winebrenner¹, Antao Chen¹, Danling Wang¹, Eric I Thorsos¹, Lisa M Zurk²

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M5D4.1629 Electrically Active Defects and Dielectric Loss in Silicon Carbide**J. M. Dutta¹, C. R. Jones², V. V. Parshin², B. Garin³, V. I. Polyakov³, A. Rukovishnikov³**¹North Carolina Central University, Durham, USA²Applied Physics Institute, RAS, Nizhny Novgorod, Russia³Institute of Radio Engineering & Electronics, RAS, Moscow, Russia

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M5D5.1239 Terahertz Time Domain Spectroscopy of Petroleum Products and Organic Solvents**Geun-Ju Kim, Seok-Gy Jeon, Jung-Il Kim, Yun-Sik Jin**

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M5D6.1351 Permittivity of Highly Absorbing Oxide Ceramics in Millimeter Waves**Mohammed N Afsar¹, King Wang², Peter Liu², Konstantin A Korolev¹**¹Tufts University, Medford, USA²AGILTRON Incorporated, Woburn, 01801³Extremely High Frequency Medical & Technical Assoc., Moscow, Russian Federation

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M5D7.1129 Dispersion and Attenuation Characteristics of Suspended Microstrip Line on Multilayer Lossy Silicon Substrate at 60 GHz**Manish P Prasad, Arun S Gaur, Vivek K Sharma, Nagendra P Pathak**

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M5D8.1554 Effect of Stochastic Fields on Spectrum of Two-level Quantum Systems**Ekaterina A Sobakinskaya, Andrey L Pankratov, Vladimir L Vaks**

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M5D9.1660 Sub-THz Wave Magnetic Resonance Force Microscopy with a Gyrotron**Mitsuru Toda¹, Seitaro Mitsudo¹, Yutaka Fujii¹, Tomohiro Kanemaki¹, Isamu Ogawa¹, Toshitaka Idehara¹, Teruo Saito¹, Yong J Lee², John T Markert²**¹Research Center for Development of Far-Infrared Region, Univ. of Fukui, Fukui, Japan²Department of Physics, University of Texas at Austin, Austin, USA

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M5D10.1158 Terahertz Spectrum & Ionic Polarizability of PbB4O7 Crystal**Bingxin Yang¹, Bihui Hou², Yicheng Wu³, Wang Li⁴, Pengzhen Fu⁵**¹Graduate University of Chinese Academy of Science, Beijing, China²Beijing University of Technology, Beijing, China³Technical Inst. of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China⁴Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China

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M5D11.1321 Inspection of Glass-Fiber Reinforced Composites with a Continuous Wave THz Imaging System

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M5D12.1438 Room Temperature Generation of Terahertz Radiation from Dual Grating Gate HEMT's

Yahya M Meziani¹, Takuya Nishimura¹, Hiroyuki Handa¹, Wojciech Knap¹, Taiichi Otsuj¹, Eiichi Sano², Vyacheslav V Popov³, Dominique Coquillat⁴, Frederic Teppe⁴

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M5D13.1492 A Novel Design of Focal Plane Array in PMMW Imaging System

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M5D14.1516 THECAMAP: Terahertz Camera for Medical Applications

Benedetta Mencagli¹, Gianpiero Scarscia¹, Sara Cibella², Michele Ortolani², Guido Torrioli², Roberto Leoni², Alessandro Tredicucci³, Maria Agnese Della Fazia⁴, Giuseppe Servillo⁴, Maurizio Grego⁴

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M5D15.1130 THz Characterization of Lossy Materials Using Multi-Layers Measuring Cell

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M5D16.1264 Influences of Real-World Conditions on Terahertz Stand-Off Detection: Simulation and Experiment

Sabine Wohnsiedler¹, Michael Theuer¹, Michael Herrmann¹, Shany Islam¹, Joachim Jonuscheit¹, René Beigang¹, Frank Hase²

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M5D17.1677 Tailored Focal Length Of The Sub-Wavelength Slit-Groove-Based Metamaterials In THz Regime**Kwangchil Lee, Kyoungsik Kim***Yonsei University, Seoul, South Korea*

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M5D18.1263 Study of Terahertz Emission from Bulk Ga[x]In[1-x]As Crystals Photoexcited by Femtosecond Laser Pulses**Youngok Ko, Suranjana Sengupta, Partha Dutta, Stephanie Tomasulo, Ingrid Wilke***Rensselaer Polytechnic Institute, Troy, USA*

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M5D19.1179 Electron Dynamics in the Process of Mode Switching in Gyrotrons**O. Dumbrajs¹, Y. Kominis², G.S. Nusinovich³**¹*Helsinki University of Technology, Helsinki, Finland*²*National Technical University of Athens, Athens, Greece*³*University of Maryland, USA*

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M5D20.1706 Low-loss Porous Silicon Substrates for Microwave and Millimeter Applications**F Guo, L Zhang, Z Sun, Z Zhu, J Chu***College of Information Sciences and Technology, East China Normal Univ, Shanghai, China*

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M5D21.1128 Theoretical Investigation into Cerenkov Radiation in an Anisotropic Double-Negative Medium**Zhaoyun Duan¹, Yubin Gong¹, Yanyu Wei¹, Wangxiang Wang¹, Bae-lan Wu², Jin Au Kong², Min Chen³**¹*Vacuum Electronics National Laboratory, School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu, China*²*Research Lab. of Electronics, Massachusetts Institute of Technology, Cambridge, USA*³*Department of Physics, Massachusetts Institute of Technology, Cambridge, USA*

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M5D22.1399 Closed-Form Dispersion Models of Slot-Line with Conductor Thickness**Payal Majumdar, Anand K. Verma***Department of Electronic Science, Univ. of Delhi, South Campus, New Delhi, India*

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M5D23.1537 A Modified Objective Discrimination Model for Triangle Orientation Discrimination Threshold Measurements**Guojing He, Jianqi Zhang, Shuang Zhang, Xiaorui Wang***Xidian University, Xi'an, China*

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M5D24.1406 Nano-Antenna for Optical Resolution Using Plasmonic Material as Substrate

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M5D25.1569 Generation of Terahertz Radiation by the Large-Aperture Photoconductive Antenna

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M5D26.1308 Design of Gyrotron FU CW V for Accurate Measurement of Positronium Energy Level

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M5D27.1448 Design and Test of New Millimeter Wave Notch Filter for Plasma Diagnostics

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M5D28.1228 Gyrotron Efficiency Reductions Due to After-Cavity Interactions

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M5D29.1200 Preliminary Design of a Stable, Second Harmonic, 1MW, Ku-Band Gyro-TWA

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M5D30.1254 RF Cavity Simulation of 0.3THz 400W Gyrotron Oscillator

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M5D31.1703 94GHz Second-Harmonic Gyrotron with Complex Cavity
Xinjian NIU, Sheng YU, Hongfu LI

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M5D32.1209 Development of a Sub Terahertz High Power Pulse Gyrotron for Collective Thomson Scattering

Teruo Saito¹, Takashi Notake¹, Yoshinori Tatematsu¹, Akihito Fujii¹, La Agusu¹, Isamu Ogawa¹, Toshitaka Idehara¹, Vladimir N. Manuilov²

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M5D33.1281 Feasibility Study of Collective Thomson Scattering in LHD Plasma Using a 400 GHz Frequency Gyrotron

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M5D34.1407 Terahertz Vector Beams

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M5D35.1166 Self-Fields and Their Effects on Electron Orbits in a Three-Dimensional Helical Wiggler Free-Electron Laser

Mahdi Esmaeilzadeh¹, Vahid Ghafouri²

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M5D36.1570 THz Performance of the Infrared Beamline at BESSY

Ulrich Schade¹, Michele Ortolani², Jongseok Lee¹

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M5D37.1551 Terahertz Band Bragg Reflectors

Naum S Ginzburg, Andrey M. Malkin, Nikolay Yu. Peskov, Alexander S. Sergeev, Vladislav Yu. Zaslavsky

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M5D38.1391 Design of a Multi-Kilowatt, 600 GHz, Second-Harmonic Gyrotron

Arne W. Fliflet, Melissa K. Hornstein, Steven H. Gold

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M5D39.1542 Helically Corrugated Waveguides for Compression of Microwave Pulses

Michael McStravick¹, Sergey V Samsonov², Adrian WCross¹, Gregory G Denisov², Wenlong He¹, Philip MacInnes¹, Alan DR Phelps¹, Vladimir L Bratman², Kevin R Ronald¹, Ivan V Konoplev¹, S Mishakin², Colin G Whyte¹, Alan R Young¹, Graeme Burt¹

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M5D40.1127 Modern Techniques of Terahertz-Subterahertz Spectroscopy of Solids

Boris P. Gorshunov, Alexander A. Volkov, Igor E. Spektor, Anatoly S. Prokhorov

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M5D41.1641 Implementation of Computer Optimization for Design of Electron Guns

Lawrence L Ives¹, Thuc Bui¹, Adam Attarian², Hien Tran², Michael Read¹, Mattie Posth³, Steven Davis², Sean Gadson², William Tallis²

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M5D42.1576 Modelling the Effect of Hydrogen Positions on the Lattice Dynamics Calculations of Terahertz Spectra of Benzoic Acid

Ruoyu Li¹, Graeme M. Day², Edward P.J.Parrott¹, J. Axel Zeitler³, Lynn F. Gladden³

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M5D43.1214 Heavy-Ion Irradiated GaAs Crystals for High-Efficient Generation of Terahertz Radiation

Maxim M. Nazarov¹, Andrey V. Shepelev², Alexander P.Shkurinov¹, Vladimir A. Skuratov³

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M5D44.1701 Effective Surface Plasmon Mediated Sub-millimeter Smith-Purcell FEL**J.K. So, M.A. Sattarov, K.H. Jang, J.H. Won, A. Srivastava, G.S. Park***Seoul National University, Seoul, Korea*

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M5D45.1454 Simulation About the Semiconductor Double Wavelength External Cavity Laser for the Generation of Tunable Terahertz Waves with Compact Structure**Jian He¹, Guixing Cao², Yinghao Yuan¹, Zu-an Li¹**¹*Wuhan National Laboratory for Photonics and College of Optoelectronic Science and Engineering, Huazhong University of Sci. & Tech., Wuhan, Hubei, Wuhan, China*²*China Academy of Space Technology, Beijing, China*

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M5D46.1674 Fine Tuning of Terahertz Generation in Fan-out Type Periodically Poled Lithium Niobate Using Femtosecond Laser Pulses
Chul Kang, Chulsik Kee, YeungLak Yee, Hyounggeun Yu, NanEi Yu, Changsoo Jung, Do-Kyeong Ko, Jongmin Lee*Advanced Photonics Research Institute, GIST, Gwangju, Republic of Korea*

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M5D47.1426 Terahertz Radiation from Target Materials Irradiated by an Ultra-intense Laser Pulse**Kitae Lee, Jungho Mun, Yong Woo Lee, Yong Ho Cha, Pil Dong Ahn, Seong Hee Park, Kwon-hae Yea, Byung Cheol Lee, Young Uk Jeong***Korea Atomic Energy Research Institute, Daejeon, Korea*

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M5D48.1656 Ultrasensitive TES Detectors for FIR Space Astronomy
Dmitry Morozov¹, Philip D Mausekopf¹, Peter Ade¹, Dorota M. Glowacka², David Goldie², Stafford Withington², Marcel Bruijn³, Pieter A. J. de Korte³, Henk Hoevers³, Marcel Ridder³, Jian-Rong Gao⁴, Wolfgang Wild⁵¹*Cardiff University, Cardiff, UK*²*Cambridge University, Cambridge, UK*³*SRON, Netherlands Institute for Space Research, Utrecht, Netherlands*⁴*Delft University of Technology, Delft, Netherlands*⁵*SRON, Netherlands Institute for Space Research, Groningen, Netherlands*

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M5D49.1768 Machining of Terahertz Split-Block Waveguides with Micrometer Precision**Peter J. Bruneau, Hal D. Janzen, John S. Ward***Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA*

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Tuesday, September 16, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Tuesday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks T1P

Chair: Koji Mizuno

Tuesday 9:00 - 10:30 am

Beckman Auditorium

T1P1.1119 The Role of Engineering Principles in the Medical Utilization of Electromagnetic Energies: Examples

Arye Rosen¹, Harel D Rosen²

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T1P2.1118 Hubbert's Peak, The Coal Question, and Climate Change

David Rutledge

Caltech, Pasadena, CA, USA

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10:30 - 11:00 am

Coffee Break

Dabney Garden

Session T2A: Gyrotrons 2

Chair: Gregory Nusinovich

Tuesday 11:00 - 12:30 pm

Room 155 Arms

T2A1.1468 Multi-Frequency Gyrotrons for Plasma Fusion Installations [keynote]

Gregory G Denisov¹, Alexander G Litvak¹, Marina VAgapova², Vadim E Myasnikov², Evgeny M Tai², Vladimir E Zapevalov¹, Alexey V Chirkov¹, Andrey N Kuftin¹, Sergey A Malygin², Vladimir I Malygin¹, Vadim O Nichporenko², Igor V Kazansky², Alexandr V Kruglov², Vera G Rukavishnikova², Alexandr F Gnedenkov²

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T2A2.1608 Recent Test Results on a 95 GHz, 2 MW Gyrotron

Kevin L Felch, Monica Blank, Philipp Borchard, Patrick Cahalan, Steve Cauffman, Howard R Jory

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T2A3.1288 Progress with the New Multi-Frequency ECRH System for ASDEX Upgrade

Dietmar Wagner¹, Thomas Franke¹, Fritz Leuterer¹, Francesco Monaco¹, Max

Münich¹, Harald Schütz¹, Jörg Stober¹, Hartmut Zohm¹, Manfred Thumm², Roland Heidinger³, Andreas Meier³, Gerd Gantenbein², Jens Flamm², Walter Kasperek⁴, Carsten Lechte⁴

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T2A4.1545 Effects of After Cavity Interaction in a 1.5 MW, 110 GHz Gyrotron with a Depressed Collector

Yoshiteru Hidaka, E. M. Choi, I. Mastovsky, M. A. Shapiro, J. R. Sirigiri, R. J. Temkin
MIT Plasma Science and Fusion Center, Cambridge, USA

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T2A5.1359 Progress on Design and Testing of ITER ECH&CD Transmission Line Components

R.A. Olstad¹, R.W. Callis¹, J.L. Doane¹, H.J. Grunloh¹, K. Kajiwar², A. Kasugai², C.P. Moeller¹, C.J. Murphy¹, Y. Oda², K. Sakamoto², K. Takahashi²

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Session T2B: Applications in Biology and Medicine 2

Chair: Liu Shenggang

Tuesday 11:00 - 12:30 pm

Room 201 E. Bridge

T2B1.1508 The Role of Structure in the Protein Dynamical Transition [keynote]

Yunfen He, Andrea G Markelz

University at Buffalo, SUNY, Buffalo, USA

Corresponding author: Yunfen He, yunfenhe@buffalo.edu

T2B2.1595 Dielectric Measurement of Small Volume Liquid Samples using Dielectric Image Guide in mm-Wave Range

Mohammad Neshat¹, Huanyu Chen¹, Suren Gigoyan², Daryoosh Saeedkia¹, Safieddin Safavi-Naeini¹

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²Institute of Radio Physics & Electronics, Ashtarak, Armenia

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T2B3.1230 Redox Reactions of Enzymes Measured by Terahertz Chemical Microscope

Toshihiko Kiwa¹, Jyunichi Kondo¹, Iwao Kawayama², Masayoshi Tonouchi², Keiji Tsukada¹

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T2B4.1424 Terahertz Dynamics of Electrolytes in Aqueous Biological Media

Seung Jae Oh¹, Inhee Maeng², Hyeoung Mun Kim², Joonggun Chong², Dong Kyu Lee², Ocki Yoo³, Dong-Hee Lee³, Yong-Min Huh⁴, Jin-Suck Suh⁴, Joo-Hiuk Son²

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T2B5.1198 A Pilot Study of Terahertz Pulsed Imaging of Osteoarthritis

Kanis W.C. Kan¹, Emma Pickwell-MacPherson¹, Wing-Sze Lee², Wing-Hoi Cheung²

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²Department of Orthopaedics & Traumatology, The Chinese University of Hong Kong, Shatin, Hong Kong

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Session T2G: Imaging 3

Chair: Haewook Han

Tuesday 11:00 - 12:30 pm

Room 22 Gates

T2G1.1178 Terahertz Imaging for Analysis of Historic Paintings and Manuscripts [keynote]

Kaori Fukunaga¹, Yuichi Ogawa², Shin'ichiro Hayashi³, Iwao Hosako¹

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³Riken, Sendai, Japan

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T2G2.1628 THz-ARTE: Non-Invasive Terahertz Diagnostics for Art Conservation

Gian Piero Gallerano¹, Andrea Doria¹, Emilio Giovenale¹, Giovanni Messina¹,

Alberto Petralia¹, Ivan Spassovsky¹, Kaori Fukunaga², Iwao Hosako²

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T2G3.1360 Room Temperature Terahertz Imaging by a GaAs-HEMT Transistor Associated with a THz Time Domain Spectrometer

A. El Fatimy¹, E. Abraham¹, E. Nguema Agnandji¹, P. Mounaix¹, F. Teppe², W. Knap³, T. Otsuji³

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T2G4.1529 Development of a Hybrid THz Camera Using Synchronized Two-Color Laser Radiation

Fabian Friederich¹, Fanzhen Meng¹, Torsten Löffler¹, Klaus P Dickel², Gunnar Spickermann², Anselm Deninger³, Axel Roggenbuck³, Frank Lison³, Ralf Henneberger⁴, Ralph Zimmermann⁴, Peter H Bolívar², Hartmut G Roskos¹

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T2G5.1745 Microscopic Structure Imaging with Phase Analysis at 60GHz Band

Toshitatsu Suzuki, Somboon Theerawisitpong, Tadahiro Negishi, Yasuo Watanabe, Noboru Morita

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Session T2K: Materials Characterization & Manufacturing

Chair: Ken Wood

Tuesday 11:00 - 12:30 pm

Room 119 Kerckhoff

T2K1.1602 Rapid Time Domain Terahertz Axial Computed Tomography for Aerospace Non-Destructive Evaluation [keynote]

David A Zimdars, Greg Fichter, Artur Chernovsky

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T2K2.1483 THz Spectroscopy for the Inline Control of Polymeric Compounding Processes

Norman Krumbholz¹, Thomas Hochrein², Nico Vieweg¹, Tomasz Hasek¹, Karsten Kretschmer², Martin Bastian², Martin Koch¹

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T2K3.1362 Low Cost Thermopile Detectors for THz Imaging and Sensing

Francesco Voltolina¹, Alessandro Tredicucci², Peter Haring Bolivar¹

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T2K4.1622 Nondestructive Evaluation of Aircraft Composites Using Terahertz Time Domain Spectroscopy

Christopher D Stoik¹, Matthew J Bohn¹, James LBlackshire²

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T2K5.1368 Toolroom CAD Technologies Applied to the Manufacture of QO Systems

Richard J Wylde, Trevor J Walker, Stuart T Froud

Thomas Kreating Ltd, Billingshurst, UK

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12:30 - 1:30 pm

Lunch Break

IOC Luncheon

Dabney Garden

Library Room, Athenaeum

(by invitation)

1:00 - 5:00 pm

Guest Program

Griffith Observatory

Session T3A: Electron Sources

Chair: Neville Luhmann

Tuesday 2:00 - 3:30 pm

Room 155 Arms

T3A1.1713 Operation of a Compact, 0.65 THz Source [keynote]

Kenneth E. Kreischer¹, John C. Tucek¹, David A. Gallagher¹, Robert E. Mihailovich²

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²Teledyne Scientific and Imaging, Thousand Oaks, USA

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T3A2.1764 Vacuum Microelectronics Applications Using Carbon Nanotube Cathodes

Harish Manohara, Risaku M Toda, Robert H Lin, Anna Liao, Robert Kowalczyk, Mohammad M Mojarradi, Anupama B Kaul

Jet Propulsion Laboratory, Pasadena, USA

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T3A3.1683 Comparative Analysis on DRIE and LIGA Fabrications for Millimeter-Wave Backward-Wave Oscillators

Chan-Wook Baik¹, Jin-Kyu So², Matlabjon Abdurakhimovich Sattorov², Anurag Srivastava², Kyu-Ha Jang², Jong Hyo Won², Young Mok Son¹, Sun Il Kim¹, Jong-Min Kim¹, Jong-Hyun Kim³, Suk-Sang Chang³, Gun-Sik Park²

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T3A4.1638 Advanced Cathode Research

Lawrence L Ives¹, Lou Falce², George Miram¹, Marc Curtis³, Kim Gunther³, Steve Schwartzkopf⁴

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T3A5.1340 650 GHz Traveling Wave Tube Amplifier
Carol L Kory¹, Michael Read¹, John Booske², Lawrence Ives¹, Giri Venkataraman², David Marsden¹, Sean Sengele²

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Session T3B: Spectroscopy & Instrumentation: Time Domain Chair: Martina Havenith

Tuesday 2:00 - 3:30 pm

Room 201 E. Bridge

T3B1.1253 Quasi-Near Field Terahertz Time Domain Spectroscopy
Reshmi Chakkittakandy, Paul C. M. Planken

Delft University of Technology, Delft, The Netherlands

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T3B2.1384 Ultrabroadband THz Wave Detection Using Photoconductive Antenna

Masaaki Ashida¹, Ryota Akai¹, Hiroshi Shimosato¹, Ikufumi Katayama², Katsuhiko Miyamoto³, Hiromasa Ito³

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²Yokohama National University, Yokohama, Japan

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T3B3.1245 Linearity of Terahertz Time-Domain Spectrometers

Mira A Naftaly¹, Mark Stringer², Richard A Dudley¹

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T3B4.1575 Terahertz Time-Domain Spectroscopy with Continuous Coverage of the Entire Terahertz Range

Nicholas E Karpowicz, Jianming Dai, X.-C. Zhang

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T3B5.1688 Terahertz Spectroscopy of Protein in Water

Hiroshi Murakami¹, Takaki Nishi¹, Yuji Toyota¹, Shigeki Nashima²

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Session T3G: Imaging 4 and Analysis

Chair: Bruce Wallace

Tuesday 2:00 - 3:30 pm

Room 22 Gates

T3G1.1478 Leaky Lens Based UWB Focal Plane Arrays for Sub-mm Wave Imaging Based on Kinetic Inductance Detectors [keynote]

Andrea Neto

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T3G2.1465 Near-Field THz Imaging and Characterization of an Array of Sub-Wavelength Circular Apertures

Joseph R. Knab¹, Aurele J.L. Adam¹, Michael Nagel², Min Ah Seo³, Dai Sik Kim³, Paul C.M. Planken¹

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T3G3.1670 Comparison of Image Resolution in Terahertz Pulsed and Continuous-Wave Imaging Systems

Bahar Davoudi, Mehrnoosh Khabiri, Daryoosh Saeedkia, Safieddin Safavi Naeini

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T3G4.1300 High-Resolution Terahertz Tomography Using 17-fs Ultrashort-Pulse Fiber Laser

Jun Takayanagi¹, So Kanamori¹, Koji Suizu¹, Kodo Kawase¹, Masatsugu Yamashita², Toshihiko Ouchi³, Shintaro Kasai³, Hideyuki Ohtake⁴, Hirohisa Uchida⁵, Norihiko Nishizawa⁶

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T3G5.1241 Multichannel THz Line Detection by a Microlens Array excited photoconductive Antenna Array

Boris Pradarutti¹, Ralf Müller¹, Gabor Matthäus², Wiebke Freese¹, Stefan Riehemann¹, Gunther Notni¹, Stefan Nolte², Andreas Tünnermann¹

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Session T3K: Materials: Periodic and Meta 1 **Chair: Abdulhakem Elezzabi**

Tuesday 2:00 - 3:30 pm

Room 119 Kerckhoff

T3K1.1120 Metamaterials for RF Applications [keynote]

Tatsuo Itoh

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T3K2.1139 Noise Versus Coherency in Millimeter-Wave Material Characterization

Boris Kapilevich¹, Jiri Polivka²

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T3K3.1475 Circular Photogalvanic Effect Due to Quantum Interference in the Terahertz Radiation Absorption

Christina Reitmaier¹, Sergey A. Tarasenko², Peter Olbrich¹, Daniel Plohmman¹, Johannes Karch¹, Vera Lechner¹, Dimitri Kvon³, Sergey D. Ganichev¹

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T3K4.1631 Microwave Spectra of Fluoroformyloxyl and Fluorosulfate Radicals

Stepan Urban¹, Lucie Kolesnikova¹, Juraj Varga¹, Marie Simeckova², Lucie N Sriteska¹, Patrik Kania¹

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T3K5.1573 Probing Solids Through THz Spectroscopy: Differentiation of Chiral and Racemic Forms of Isostructural and Non-Isostructural Cocrystals

Edward P. J. Parrott¹, Axel Zeitler¹, Tomislav Friscic³, Michael Pepper², William Jones³, Graeme M. Day³, Lynn F. Gladden¹

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session T4A: FELs 1

Chair: George Neil

Tuesday 4:00 - 5:30 pm

Room 155 Arms

T4A1.1752 Exploring Novel Terahertz Detectors and Sources with the UCSB Free-Electron Lasers [keynote]

S James Allen¹, Gregory R Aizin², John Bowers¹, Greg C Dyer¹, Dan Mars³, J Mikalopas², John L Reno⁴, Peter Robrish³, Eric Shaner⁴, Michael Wanke⁴, Gehong Zeng¹

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T4A2.1535 Characterization of Windows for Fusion Applications Using a D-Band Network Analyzer

Jens Flamm¹, Andreas Schlaich¹, Andreas Arnold², Oliver Prinz¹, Roland Heiding-er³, Manfred Thumm²

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T4A3.1459 First Commissioning Results in the IR/THz Range at the Electron Storage Ring Metrology Light Source

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T4A4.1648 Single Shot High Resolution THz Upconversion Spectrometer

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T4A5.1412 Theoretical Study of 174 GHz Operation of the W7-X 1 MW, 140 GHz Gyrotron

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Session T4B: THz Instruments**Chair: Geoffrey Blake****Tuesday 4:00 - 5:30 pm****Room 201 E.Bridge**

T4B1.1671 A High Signal-to-Noise Ratio, Coherent, Frequency-Domain THz Spectrometer Employed to Characterize Explosive Compounds [keynote]

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T4B2.1443 2 Port Vectorial THz Electro-Optic Sampling System

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T4B3.1418 Tunable CW THz Source with High-Precision Frequency Control

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T4B4.1627 Fast Sweep Solid State Spectrometer for SubTHz and THz Frequency Ranges

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T4B5.1322 1.5 μm Wavelength All-Fiber Terahertz Time-Domain Spectrometer

Helmut Roehle, Bernd Sartorius, Harald Künzel, Jutta Böttcher, Michael Schlak, Dennis Stanze

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Session T4G: QCL 1**Chair: Tim May****Tuesday 4:00 - 5:30 pm****Room 22 Gates**

T4G1.1565 Integration of Terahertz Quantum Cascade Lasers with Lithographically Micromachined Waveguides [keynote]

Michael C Wanke, Christopher Nordquist, Christian L Arrington, Adam M Rowen, Albert D Grine, Eric A Shaner, Mark Lee

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T4G2.1304 Terahertz Frequency Quantum Cascade Lasers Operating up to 178 K with Copper Metal-Metal Waveguides

Mikhail A Belkin¹, Suraj P Khanna², Jonathan AFan¹, Sahand Hormoz¹, Mohamed Lachab², Federico Capasso¹, Alexander G Davies², Edmund H Linfield²

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T4G3.1704 Terahertz Sideband-Tuned Quantum Cascade Laser Radiation

Andriy A. Danylov¹, Jerry Waldman¹, Thomas M. Goyette¹, Michael J. Coulombe¹, Andrew J. Gatesman¹, Robert H. Giles¹, Jin Li², William D. Goodhue², Kurt J. Linden³, William E. Nixon⁴

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T4G4.1740 Directional Beam Pattern from a Double Metal Quantum Cascade Laser with a TEM-Horn Antenna

Tahsin Akalin¹, Wilfried Mainault², Emilien Peytavit¹, Pierre Jellie², Jean-Francois Lampin¹, Carlo Sirtori², Stefano Barbieri²

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Session T4K: Novel Devices and Components 1

Chair: Farhan Rana

Tuesday 4:00 - 5:30 pm

Room 119 Kerckhoff

T4K1.1591 MEMS-Fabricated Micro Vacuum Electron Devices (Micro-VEDs) for Terahertz (THz) Applications [keynote]

Young-Min Shin, Larry R Barnett, Neville C Luhmann Jr.

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T4K2.1251 Heterostructure Equivalence of Step-Recovery Diodes for Ballistic and Diffusive Electron Resonance - A New Concept for THz Signal Generation [keynote]

Hans L. Hartnagel¹, L. P. Schmidt², B. Nicolae¹, I. Oprea¹, D. Schönherr¹, D. S. Ong³, J. Schür², M. Ruf²

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T4K3.1763 High Efficiency Submillimeter-Wave Imaging Array [keynote]
Nuria Llombart, Anders Skalare, John J Gill, Peter H Siegel

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T4K4.1556 Micromachined Terahertz Waveguides with Embedded Metal Rods

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Poster Session T5D

Tuesday 5:30 - 7:00 pm

Dabney Garden

T5D1.1409 Determination of the Influence of Dialysis on the Human Skin Water Content by Means of Terahertz Spectroscopy

Filip Kadlec¹, Milan Berta¹, Petr Kuzel¹, Frantisek Lopot², Vladimir Polakovic²

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T5D2.1666 Identification of Pollutant Gases from an Atmospheric Mixture Using High Resolution Dispersive Fourier Transformation Spectroscopy

Nawaf N Almoayed, Golam R Khan, Mohammed N Afsar

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T5D3.1461 Coherent Excitation in Superionic Conductors

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T5D4.1155 Terahertz Spectrum of KDP Crystal

Bihui Hou¹, Shunsuo Li², Guozhong Zhao³, Wei Meng⁴, Xinan Chang⁵

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T5D5.1305 Study of Terahertz Extended Interaction Oscillator

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T5D6.1235 A Fiberstretcher Operating as an Optical Delay Line in a Fiber-coupled THz Spectrometer

Norman Krumbholz, Michael Schwerdtfeger, Tomasz Hasek, Benedikt Scherger, Martin Koch

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T5D7.1380 Orientation Dependence of THz Scattering from Cylindrical Strands

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T5D8.1633 The Effects of Beamsplitter Emission in a Balanced Fourier Transform Spectrometer

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T5D9.1578 Fano Profiles in Transmission Spectra of Terahertz Radiation through Periodic Metallic Structures

Boris Pradarutti¹, Garik Torosyan², René Beigang³

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T5D10.1435 Terahertz Spectra of GaSe: Fundamental and Two-Order Phonon Processes

Dong Wen Zhang, Zhi Hui Lv, Lin Sun, Zheng Zheng Shao, Jian Min Yuan

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T5D11.1358 Passive 8-mm Microwave Imaging System for the Observing of the Neighborhood Situation

Alexander G. Denisov¹, Vladimir P. Corishnyak¹, Sergey E. Kuzmin¹, Valeriy A. Obolonsky¹, Vassiliy N. Radzikhovskiy¹, Borys M. Shevchuk¹, Borys M. Yshenko¹, Vitaliy P. Uliz'ko¹, Jung Y. Son², Vyacheslav V. Miklashevich¹

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T5D12.1194 Feasibility of Real-Time Terahertz Speckle Metrology

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T5D13.1584 Perturbation Analysis of Terahertz Confocal Microscopy
Mee-Hyun Lim, Jeonghoi Kim, Younho Han, Kiwon Moon, Euna Jung, Haewook Han

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T5D14.1316 Penetration Monitoring of Fixation Solution into Tissues Using Millimeter Waves

Maya Mizuno, Kaori Fukunaga, Iwao Hosako

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T5D15.1471 Thermal Portraits of Objects in the MM and IR Wave Bands
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T5D16.1775 Startup Scenarios in MW-Class Gyrotrons With Diode and Triode-Type Electron Guns

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T5D17.1280 Multimode Conversions in an Overmoded Coaxial Bragg Resonator

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T5D18.1579 Iterative Image Method for Apertureless Terahertz Near-Field Microscope

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T5D19.1610 Intense Terahertz Wave Generation from Gases

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T5D20.1231 Enhanced Coupling Property using a Conical Metal Wire Waveguide in the Terahertz Frequency Range

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T5D21.1727 Theoretical Optimization of Metal Mesh THz-Filters for Selecting Harmonics of NovoFEL Radiation

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T5D22.1255 A Terahertz Yagi-Uda Antenna for High Input Impedance

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T5D23.1185 Nonlinearly Driven Oscillations in the Gyrotron Traveling-Wave Amplifier

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T5D24.1442 Closed-Form Model of Shunt Capacitance and Inductance of Microstrip Step Discontinuity

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T5D25.1311 A Novel Design of an Ortho-Mode Transducer at 150 and 225 GHz - Clover Detector RF Design

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T5D26.1312 Development of Gyrotron FU CW IIA for 600 MHz and 300 MHz DNP-NMR Experiments at the University of Warwick

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T5D27.1221 Narrow-Gap Semiconductor as the All-Wave Detector from Near IR to MM Wave Regions**Fedir F Sizov¹, Valentin N Dobrovolsky¹, Yuri EKamenev², Alex B Smirnov¹, Vyacheslav V Zabudsky¹**¹*Institute of Semiconductor Physics, Kiev, Ukraine*²*Institute for Radiophysics and Electronics, Kharkov, Ukraine*

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T5D28.1432 Design of Gyrotron FU CW VI for 600 MHz DNP-NMR Experiment**M. Glyavin¹, T. Idehara², V. Khizhnyak¹, A. Luchinin¹, V Manuilov¹, LaAgusu², I. Ogawa², T. Saito², H. Takahashi³, T. Fujiwara³**¹*Institute of Applied Physics Russian Academy of Science, Nizhny Novgorod, Russia*²*Research Center for Development of Far Infrared Region, Univ. of Fukui, Fukui, Japan*³*Institute of Protein Research, Osaka University, Osaka, Japan*

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T5D29.1248 Improved Quasi-Optical Launcher for Coaxial Cavity ITER Gyrotron**Jianbo Jin¹, Manfred Thumm¹, Bernhard Piosczyk¹, Jens Flamm², Oliver Prinz¹, Tomasz Rzesnicki¹**¹*Forschungszentrum Karlsruhe, Association EURATOM-FZK, Institut fuer Hochleistungsimpuls- und Mikrowellentechnik (IHM), Karlsruhe, Germany*²*Universitaet of Karlsruhe, Institut für Hoechstfrequenztechnik und Elektronik, Karlsruhe, Germany*

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T5D30.1290 Coupled-mode Theory of Coaxial THz Gyrotron with Two Electron Beams**Diwei Liu, Xuesong Yuan, Yang Yab, Shenggang Liu***THz Research Center, Univ. of Electronic Science & Technology of China, Chengdu, China*

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T5D31.1187 Terahertz Conductivity of Si and of Ge/Si(001) Heterostructures with Quantum Dots**Elena S Zhukova, Boris P Gorshunov, Anatoly S Prokhorov, Larisa V Arapkina, Valery A Chapnin, Viktor P Kalinushkin, Galina N Mikhailova, Vladimir A Yuryev***A.M. Prokhorov General Physics Institute, Moscow, Russia*

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T5D32.1206 Experimental and Theoretical Thermal Analysis of CVD Diamond Window Units for the ITER Upper Launcher**Theo A. Scherer¹, Roland Heidinger¹, Andreas Meier¹, Dirk Strauss¹, Koji Takahashi², Ken Kajiwara², Keishi Sakamoto²**¹*Institut für Materialforschung IMF-I, Association EURATOM-FZK, Forschungszentrum Karlsruhe, D-76021 Karlsruhe, Germany*²*Plasma Heating Technology Group, Japan Atomic Energy Agency (JAEA), 801-1 Mukoyama, Naka, Japan*

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T5D33.1271 CW Operation of a Tunable 330/460 GHz Gyrotron for Enhanced Nuclear Magnetic Resonance

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T5D34.1211 Low-Voltage, Sheet-Beam MMW Amplifiers

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T5D35.1167 Effects of Reversed-Field on Electron Chaotic Orbits in a Free-Electron Laser

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T5D36.1408 A New Terahertz Passive Radial Polarizer

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T5D37.1538 Theoretical Analyses and Numerical Simulation About Photomixing Process in InGaAs with Antenna Structure for CW Terahertz Generation

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T5D38.1493 Optimization of Photonic Crystal Interfaces for High Efficiency Coupling of Terahertz Waves

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T5D39.1257 A Proposed Measurement of the Reverse Cherenkov Radiation Effect in a Metamaterial-Loaded Circular Waveguide

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T5D40.1590 Alternative Explanation of Free-Induction Decay

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T5D41.1327 Effective Permittivity and Scattering Model for the Evaluation of the Leaf Water Status

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T5D42.1687 Sub-THz RTD Oscillators Integrated with Planar Horn Antennas for Horizontal Radiation

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T5D43.1776 Simultaneous Dual Scanning Terahertz System

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T5D44.1777 Double-modulated DTDS-THz Liquid Spectroscopy using a Novel Spinning Wheel Technique

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T5D45.1667 The Millimeter-Wave Detector Using Vanadium Oxide with Planar Structure Antenna

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T5D46.1378 Broadband Scanning Spectrometer with Heterodyne SIS (Superconductor-Insulator-Superconductor) Receiver

Kenichi Kikuchi¹, Satoshi Kohjiro¹, Masaaki Maezawa¹, Hiroyuki Ozeki²

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T5D47.1417 Emission of Terahertz-Frequency Electromagnetic Radiation from Indium Phosphide under Excitation by Short Pulses of Near-Infrared Radiation

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T5D48.1173 Generation of Terahertz Radiation in Waveguides Partially Loaded with Nonlinear Crystal

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T5D49.1785 Towards Microwave Photon Counting via Frequency Up-Conversion

Dmitry V. Strekalov, Anatoliy A. Savchenkov, Andrey B. Matsko, Nan Yu

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Corresponding author: Dmitry A. Strekalov, Dmitry.V.Strekalov@jpl.nasa.gov

7:00 - 9:00 pm

Reception

Pacific Asia Museum

Wednesday, September 17, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Wednesday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks W1P

Chair: Xi-Cheng Zhang

Wednesday 9:00 - 10:30 am

Beckman Auditorium

W1P1.1262 Why the Submillimeter? Why Has It Taken So Long?

Frank C. De Lucia

Ohio State University, Columbus, Ohio, USA

Corresponding author: Frank De Lucia, fcd@mps.ohio-state.edu

W1P2.1163 Investigation of the Lowest-Order TE Mode of the Parallel-Plate Metal Waveguide for Terahertz Pulses

Rajind M Mendis, Daniel M. Mittleman

Rice University, Houston, TX, USA

Corresponding author: Daniel Mittleman, daniel@rice.edu

10:30 - 4:00 pm

Guest Program

Getty Center of Los Angeles

10:30 - 11:00 am

Coffee Break

Dabney Garden

Session W2A: THz Astrophysics & Atmospheric Instrumentation 1 Chair: Hans-Peter Roeser**Wednesday 11:00 - 12:30 pm****Room 155 Arms****W2A1.1159** Submillimeter Spectroscopy - Water and Oxygen: Where are These Key Species in Interstellar Clouds? [keynote]**Paul F Goldsmith***Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA*

Corresponding author: Paul F. Goldsmith, Paul.F.Goldsmith@jpl.nasa.gov

W2A2.1410 Long Path Length CW-THz Spectrometer Using a Multipass Cell**Francis Hindle, Chun Yang, Arnaud Cuisset, Gael Mouret, Robin Bocquet***Université du Littoral Côte d'Opale, Dunkerque, France*

Corresponding author: Francis Hindle, francis.hindle@univ-littoral.fr

W2A3.1212 PILOT: Measuring the FIR Polarization of the Diffuse Interstellar Medium**Jean-Philippe Bernard¹, Peter Ade², Paolo deBernardis³, Peter Hargrave², Bernadette Leriche⁴, Yuying Longval⁴, Christophe Marty¹, Silvia Masi³, Francois Pajot⁴, Louis Rodriguez⁵**¹*CESR, Toulouse, France*²*Cardiff University, Cardiff, UK*³*La Sapienza University, Rome, Italy*⁴*IAS, Orsay, France*⁵*CEA, Saclay, France*

Corresponding author: Jean-Philippe Bernard, Jean-Philippe.Bernard@cesr.fr

W2A4.1653 Clear-Air Backscatter from the Lower Atmosphere Using a High-power, Millimeter Wave Radar**Mai T. Ngo¹, George J. Linde²**¹*Naval Research Laboratory, Washington, USA*²*SFA Inc., USA*

Corresponding author: Mai T. Ngo, mai.ngo@nrl.navy.mil

W2A5.1219 Extremely Bright Astrophysical Objects Excited by THz Radiation: Do They Operate in a Maser Regime?**Andrey V. Shepelev***A.N. Kosygin Moscow State University, Moscow, Russia*

Corresponding author: Andrey V. Shepelev, shepelev@rambler.ru

Session W2B: Applications in Biology and Medicine 3 Chair: Fritz Keilmann**Wednesday 11:00 - 12:30 pm****Room 201 E. Bridge****W2B1.1623** An Intra-operative THz Probe For Use During The Surgical Removal of Breast Tumors [keynote]**Philip C Ashworth¹, Padraig O'Kelly², Anand D Purushotham³, Sarah E Pinder³, Michalis Kontos³, Michael Pepper¹, Vincent P Wallace⁴**¹*Cavendish Laboratory, University of Cambridge, Cambridge, UK*

²TeraView Ltd., Cambridge, UK

³Dept. of Academic Oncology, King's College London, Guy's Hospital, London, UK

⁴Optical + Biomedical Engineering Lab., Univ. of Western Australia, Perth, Australia

Corresponding author: Philip C Ashworth, pca27@cam.ac.uk

W2B2.1624 The Use of Microwave, Millimeter Wave and Terahertz Spectroscopy for the Detection, Diagnostics and Prognosis of Breast Cancer

Mohammed N. Afsar¹, Mahmut Obol¹, Konstantin Korolev¹, Stephen P Naber²

¹High Frequency Material Measurement & Information Center, Tufts Univ., Medford, USA

²Tufts-New England Medical Center, Department of Pathology, Boston, USA

Corresponding author: Mohammed N. Afsar, mafsar@ece.tufts.edu

W2B3.1711 50 GHz Microwave Exposure Effect of Radiations on Rat Brain
Kavindra Kumar Kesari, Jitendra Behari

Jawaharlal Nehru University, New Delhi, India

Corresponding author: Kavindra Kumar Kesari, kavindra_biotech@yahoo.co.in

W2B4.1390 THz Spectroscopy of Protein Complexes

Inke M Jones, Derek Abbott, Bernd M Fischer

The University of Adelaide, Adelaide, Australia

Corresponding author: Bernd M Fischer, bfischer@eleceng.adelaide.edu.au

W2B5.1684 Studies on Interfacial Water Adsorbed on Mica at Room Temperature using Terahertz Spectroscopy

S.-J. Chang, S.-M. Ahn, O.-J. Kwon, M.-A. Seo, D.-S. Kim, W.-H. Jhe, G.-S. Park

Department of Physics & Astronomy, Seoul National University, Seoul, Korea

Corresponding author: Gun-Sik Park, gunsik@snu.ac.kr

Session W2G: Imaging 5

Chair: Kaori Fukunaga

Wednesday 11:00 - 12:30 pm

Room 22 Gates

W2G1.1722 THz Microbolometers for Imaging Applications [keynote]

Erich Grossman¹, Charles Dietlein², Jon Bjarnason¹, Arttu Luukanen³, Mikko

Leivo³, Jari Penttilä⁴

¹Optoelectronics Div., NIST, Boulder, USA

²ECE Dept., Univ. of Colorado, Boulder, USA

³Millilab, and VTT Technical Research Center of Finland, Espoo, Finland

⁴Aivon Oy, Espoo, Finland

Corresponding author: Erich N Grossman, grossman@boulder.nist.gov

W2G2.1694 Millimeter Wave Synthetic Thinned Aperture Radiometer

Pekka Kangaslahti, Alan Tanner, Todd Gaier, Bjorn Lambrigtsen, Ian O'Dwyer, David Pukala

Jet Propulsion Laboratory, Pasadena, USA

Corresponding author: Pekka Kangaslahti, pekka@jpl.nasa.gov

W2G3.1208 Active and Passive mm-Wave Imaging for Concealed Weapon Detection and Surveillance

Stephan Stanko, Denis Nötel, Alfred Wahlen, Johann Huck, Frank Klöppel,

Rainer Sommer, Manfred Hägelen, Helmut Essen

FGAN Research Inst. for High-Frequency Physics & Radar Techniques, Wachtberg, Germany

Corresponding author: Stephan Stanko, stanko@fgan.de

W2G4.1747 Concealed Object Contrast Enhancement Using Radar Methods in a Submillimeter-Wave Active Imager

Ken B Cooper¹, Robert J Dengler¹, Nuria Llombart², Tomas Bryllert², Goutam Chattopadhyay¹, Erich Schlecht¹, John Gill¹, Choonsup Lee¹, Imran Mehdi¹, Peter H Siegel²

¹JPL, Pasadena, USA

²Caltech, Pasadena, USA

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W2G5.1632 Inverse Synthetic Aperture Radar Imaging at 580 GHz

James A Trischman¹, John R Bennett¹, Kenneth AMelendez¹, Byron F Summers¹, Jeremy Sorensen¹, Kenneth B Cooper², Peter H Siegel²

¹Science Applications International Corp., San Diego, USA

²Jet Propulsion Laboratory, Pasadena, USA

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Session W2K: Antennas

Chair: Andrea Neto

Wednesday 11:00 - 12:30 pm

Room 119 Kerckhoff

W2K1.1389 Optical Scanning Techniques for Characterization of Terahertz Photoconductive Antenna Arrays [keynote]

Henry F Tiedje¹, Daryoosh Saeedkia², Michael Nagel³, Harold K Haugen³

¹Brockhouse Institute for Materials Research, McMaster University, Hamilton, Canada

²Dept. of Electrical & Computer Engineering, University of Waterloo, Waterloo, Canada

³Department of Engineering Physics, McMaster University, Hamilton, Canada

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W2K2.1546 A Folded Dipole Antenna Having Extremely High Input Impedance for Continuous-wave Terahertz Power Enhancement

Han C Ryu¹, Sung I Kim¹, Min HKwak¹, Kwang Y Kang¹, Seong O Park²

¹Electronics and Telecommunications Research Institute, Daejeon, Korea

²School of Engineering, Information and Communications University, Daejeon, Korea

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W2K3.1536 Catadioptric Dielectric Lens for Imaging Applications

Biddut K Banik, Josip Vukusic, Jan Stake

Physical Electronics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden

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W2K4.1302 Enhanced Emission from THz Antennas Made of Low-Temperature-Grown GaAs with Annealed Ohmic Contacts

Nico Vieweg¹, Martin Mikulics², Maik Scheller¹, Kamran Ezdi¹, Rafal Wilk³, Heinz

W Hübers⁴, Martin Koch¹

¹Institute of High Frequency Technology, TU Braunschweig, Braunschweig, Germany

²Institute of Bio- and Nanosystems and cni-Center of Nanoelectronic Systems for Information Technology, Research Centre Jülich, Jülich, Germany

³Menlo Systems GmbH, Martinsried, Germany

⁴Institute of Planetary Research, German Aerospace Center (DLR), Berlin, Germany

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W2K5.1637 A Comparison of the Gaussian Coupling Efficiency for Three Types of Terahertz Horn Antennas

Charlie H Smith,III¹, Hiayoung Xu¹, Jeffery Hesler², N. Scott Barker¹

¹University of Virginia, Charlottesville, USA

²Virginia Diodes, Inc., Charlottesville, USA

Corresponding author: Charlie H. Smith,III, chs3z@virginia.edu

12:30 - 1:30 pm

Lunch Break

Button Prize Committee

luncheon

Dabney Garden

Library Room, Athenaeum

(by invitation)

Session W3A: THz Astrophysics & Atmospheric Instrumentation 2 Chair: Paul Goldsmith

Wednesday 2:00 - 3:30 pm

Room 155 Arms

W3A1.1151 The Herschel Space Observatory

Matt Griffin¹, Goeran Pilbratt², Thijs de Graauw³, Albrecht Poglitsch⁴

¹Cardiff University, Cardiff, UK

²European Space Agency, ESTEC, Noordwijk, Netherlands

³SRON, Groningen, Netherlands

⁴Max-Planck-Institut für Extraterrestrische Physik, Garching, Germany

Corresponding author: Matt Griffin, matt.griffin@astro.cf.ac.uk

W3A2.1715 In Situ Gas Sensing Instruments for Planetary Science [keynote]

James L Lambert¹, Michael Bender², Forian VEnglich¹, Anita M Fisher¹, Richard Quinn³, Tullis C Onstott², Aaron P Zent³

¹Jet Propulsion Laboratory, Pasadena, USA

²Princeton University, Princeton, USA

³NASA Ames Research Center, Moffett Field, USA

Corresponding author: James L Lambert, James.L.Lambert@jpl.nasa.gov

W3A3.1553 Mid-Infrared Observations with the Tuneable Heterodyne Infrared Spectrometer "THIS" [keynote]

Rudolf T Schieder, Guido Sonnabend, Manuela Sornig, Peter Kroetz, Dusan Stupar

Physikalisches Institut, Universitaet zu Koeln, Cologne, Germany

Corresponding author: Rudolf T Schieder, schieder@ph1.uni-koeln.de

W3A4.1635 Submillimeter Wave Spectroscopy and the Search for Life on Planets [keynote]

Brian J Drouin, Ken Cooper, Robert A Stachnik, John C Pearson

California Institute of Technology, Jet Propulsion Laboratory, Pasadena, USA

Corresponding author: Brian J. Drouin, brian.j.drouin@jpl.nasa.gov

Session W3B: Spectroscopy & Instrumentation: Components **Chair: Torsten Löffler**

Wednesday 2:00 - 3:30 pm

Room 201 E. Bridge

W3B1.1572 Asymmetric Comb-FTIR for Characterizing Metamaterials [keynote]

Fritz Keilmann

Max-Planck-Institut für Biochemie, Martinsried, Germany

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W3B2.1341 Modulators of THz Radiation Based on SrTiO₃ Epitaxial Thin Films

Filip Kadlec¹, Christelle Kadlec¹, Jurgen Schubert², Grigory I Panaitov², Petr Kuzel¹

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²*Institute of Bio- and Nano- Systems and Center of Nanoelectronics and Information Technology, Jülich, Germany*

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W3B3.1726 Electroformed Metal Mesh THz-Filters for Selecting Harmonics of NovoFEL Radiation

Sergei A. Kuznetsov, Vitaly V. Kubarev, Petr V. Kalinin

Budker Institute of Nuclear Physics SB RAS, Novosibirsk State Univ., Novosibirsk, Russia

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W3B4.1240 Rotary Optical Delay Line for High Speed Scanning of Terahertz Pulse

Yun-Sik Jin, Geun-Ju Kim, Seok-Gy Jeon, Jung-Il Kim

Korea Electrotechnology Research Institute, Ansan, Korea

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W3B5.1759 Co-axially Configured Supersonic Jet Spectrometer for Submillimeter Investigations of Non-covalent Interactions

John W Bevan, Sergey P Belov, Fabrice F Willaert, Blake A McElmurry, Robert R Lucchese

Texas A&M University Department of Chemistry, College Station, USA

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Session W3G: OCL 2 & Sources

Chair: Mark Lee

Wednesday 2:00 - 3:30 pm

Room 22 Gates

W3G1.1725 Terahertz Quantum-Cascade Lasers: Time Domain Spectroscopy and Micro Cavity Effects [keynote]

J. Darmo¹, G. Fasching¹, A. Benz¹, J. Kröll¹, A.M. Andrews², W. Schrenk², G. Strasser², K. Unterrainer¹, S. Barbieri³, C. Sirtori³, M. Martl¹, D. Dietze¹

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³Matériaux et Phénomènes Quantiques Laboratoires, Université Paris 7, Paris, France

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W3G2.1552 Quantum-Cascade Photonic Crystal Laser

Alexander Benz¹, Gernot Fasching¹, Christoph Deutsch¹, Aaron M Andrews¹, Karl Unterrainer¹, Pavel Klang², Werner Schrenk², Gottfried Strasser²

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²Institute of Solid-State Electronics, Vienna University of Technology, Vienna, Austria

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W3G3.1615 Compact, Scalable THz Source

Hans P Bluem¹, Robert H Jackson²

¹Advanced Energy Systems, Medford, USA

²Jackson Scientific Consulting, Greensboro, USA

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W3G4.1709 Spectral Gain Narrowing in Terahertz Quantum Cascade Lasers

Sukhdeep S Dhillon¹, Nathan Jukam¹, Dimitri Oustinov¹, Zhen-Yu Zhao¹, Sophie Hameau¹, Stefano Barbieri², Pascal Filloux², Xavier Marcadet³, Carlo Sirtori², Jerome Tignon¹

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W3G5.1279 Design and Fabrication of Quantum Cascade Laser Structure based on III-Nitride Semiconductors in the THz Frequency Range

Wataru Terashima, Hideki Hirayama

RIKEN-Sendai, Sendai, Japan

Corresponding author: Wataru Terashima, terashima@riken.jp

Session W3K: Materials: Periodic and Meta 2**Chair: Tatsuo Itoh****Wednesday 2:00 - 3:30 pm****Room 119 Kerckhoff****W3K1.1505** Terahertz Plasmonic Random Metamaterial [keynote]**Abdulahkem Y Elezzabi, Kenneth J Chau, Pouya P. Maraghechi***University of Alberta, Edmonton, Canada*

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W3K2.1650 A Terahertz Plasmonic Metamaterial Structure for Near-Field Sensing Applications**Amir Arbabi, Arash Rohani, Daryoosh Saeedkia, Safieddin Safavi-Naeini***University of Waterloo, Waterloo, Canada*

Corresponding author: Amir Arbabi, aarbabi@maxwell.uwaterloo.ca

W3K3.1370 High Power Masers Based on 2D Periodic Structures: From the GHz to THz Frequency Range**L Fisher, P MacInnes, I V Konoplev, A W Cross, W He, K Ronald, A D Phelps, C G Whyte, C W Robertson***University of Strathclyde, Glasgow, United Kingdom*

Corresponding author: Lorna Fisher, l.fisher@strath.ac.uk

W3K4.1571 Negative Refracting Materials at THz Frequencies**G Peter Swift¹, Andrew J Gallant², DeChang Dai¹, Mikhail A Kaliteevski¹, Stuart Brand¹, Dagou A Zeze², David Wood², Michael C Petty², Richard A Abram¹, J Martyn Chamberlain¹**¹*Physics Department, Durham University, Durham, United Kingdom*²*School of Engineering, Durham University, Durham, United Kingdom*

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W3K5.1532 Quasi-Optical Measurements of Magnetic Materials at Frequencies up to 630 GHz**Bin Yang¹, Derek H Martin¹, Robert S Donnan¹, Richard J Wylde²**¹*Dept. of Electronic Engineering, Queen Mary University of London, London, UK*²*Thomas Keating Ltd, Station Mills, UK*

Corresponding author: Bin Yang, bin.yang@elec.qmul.ac.uk

3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session W4A: THz Photonics**Chair: Kiyomi Sakai****Wednesday 4:00 - 5:30 pm****Room 155 Arms****W4A1.1733** Terahertz Spectroscopy of Ultrafast Carrier Dynamics in Nanomaterials [keynote]**Frank A Hegmann¹, David G Cooke², Markus Walther³**¹*Department of Physics, University of Alberta, Edmonton, Canada*²*DTU Photonics, Technical University of Denmark, Lyngby, Denmark*

³Department of Molecular and Optical Physics, Physikalisches Institut, Albert-Ludwigs-Universität, Freiburg, Germany

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W4A2.1460 Effect of InGaAs Surface States and Interfaces on the Photo-Generated THz Pulse Shape

Bouchra Tissafi, Anne-Sophie Grimault, Frédéric Aniel

Institut d'Electronique Fondamentale, Orsay, France

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W4A3.1760 Photonic Front-End for Millimeter Wave Applications

Vladimir S Ilchenko, Anatoliy A Savchenkov, Jerry Byrd, Andrey B. Matsko, David Seidel, Lute Maleki

OEwaves Inc., 1010 E. Union Str., Pasadena, USA

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W4A4.1494 THz Differential Spectroscopy of Rhodopsin

Anthony J Vickers¹, Yong Ma¹, Richard Dudley², Philip Reeves³, Chris A Reynolds³, S Gadde³

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²National Physical Laboratory, Teddington, UK

³Department of Biological Sciences, University of Essex, Colchester, UK

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W4A5.1224 Terahertz Time-Domain Spectroscopy of D2O

Jojit C. Torcedo, Harry W.K. Tom

University of California, Riverside, USA

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Session W4B: Material Properties: Organic Chair: Michael von Ortenberg

Wednesday 4:00 - 5:30 pm

Room 201 E.Bridge

W4B1.1356 Differentiation of Structurally Related Compounds Using Terahertz Spectroscopy

Pierre Fromentin¹, Frederic Garet², Evarzeg Le Bouffant¹, Rysvan Maleck-Rassoul¹

¹KWEELE, Gragnan, France

²IMEP-LAHC, Universite de Savoie, Le Bourget du Lac, France

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W4B2.1702 THz Spectroscopy Through a High-Pressure Combustion System

Mark R Stringer¹, Jason Bassi², Robert E Miles¹, Yang Zhang², Krikor Ozanyan³

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²Univ. of Manchester, School of Mechanical, Aerospace & Civil Engineering, Manchester, UK

³Univ. of Manchester, Dept. of Electrical & Electronic Engineering, Manchester, UK

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W4B3.1626 High Frequency Characterization of Carbon Nanotube Films
Ziran Wu, Lu Wang, Hao Xin

University of Arizona, Tucson, USA

Corresponding author: Hao Xin, hxin@ece.arizona.edu

W4B4.1403 Terahertz Electromagnetic Interference Shielding Using Single-Walled Carbon Nanotube Flexible Films

Jong-Hyuk Yim¹, Min-Ah Seo², Yeong-Hwan Ahn¹, Fabian Rotermund¹, Dai-Sik Kim², Soonil Lee¹, Hanjo Lim³

¹*Division of Energy Systems Research, Ajou University, Suwon, Korea*

²*Department of Physics and Astronomy, Seoul National University, Seoul, Korea*

³*Department of Electrical Engineering, Ajou University, Suwon, Korea*

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W4B5.1265 Far Infrared Spectroscopy of Mineral Particles

Tatiana E. Brusentsova¹, Robert E. Peale¹, Andy Nissinboim², Joseph Boisenberg², Julie Leibold², George Harlow², Denton Ebel², Karl Hibbitts³, Carey Lisse³

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Session W4G: Mixers

Chair: Trevor Bird

Wednesday 4:00 - 5:30 pm

Room 22 Gates

W4G1.1444 Electrons at Schottky Barrier in Presence of Strong Coherent THz Radiation [keynote]

Gagik T Avanesyan¹, Stepan G Petrosyan², Anahit S Nikoghosyan³, Hans-Peter Roeser⁴

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²*Russian-Armenian State University, Yerevan, Armenia*

³*Yerevan State University, Yerevan, Armenia*

⁴*Institute of Space Systems, Stuttgart, Germany*

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W4G2.1284 A 4th Harmonic Schottky Diode Mixer - Facilitated Access to THz Frequencies

Jan Schuer, Marcel Ruf, Lorenz-Peter Schmidt

Chair for High Frequency Technology, Univ. of Erlangen-Nuremberg, Erlangen, Germany

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W4G3.1437 Design of an 874 GHz Biasable Sub-Harmonic Mixer Based on MMIC Membrane Planar Schottky Diodes

Bertrand C Thomas¹, Alain Maestrini², David Matheson¹, Imran Mehdi³, Peter De Maagt⁴

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²*Observatoire de Paris, Paris, France*

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W4G4.1601 Optical Mixing in THz Schottky Diodes

Daniel Schoenherr¹, Oleg Cojocari², Cezary Sydlo², Thorsten Goebel¹, Michael Feiginov¹, Hans L Hartnagel¹, Peter Meissner¹

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²ACST GmbH, Darmstadt, Darmstadt

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W4G5.1765 New 600 GHz Balanced and Subharmonically Pumped Mixers with Reduced LO Power and State-of-the-Art Performance

Erich Schlecht, Goutam Chattopadhyay, John Gill, Robert Lin, Imran Mehdi
JPL, Pasadena, USA

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Session W4K: Detectors 2

Chair: Erich Grossman

Wednesday 4:00 - 5:30 pm

Room 119 Kerckhoff

W4K1.1673 Ultra-Sensitive Hot-Electron Nanobolometers for THz Astrophysics [keynote]

Boris S Karasik¹, Sergey V Pereverzev¹, Jian Wei², David Olaya², Michael E Ger-shenson², Andrei V Sergeev³, Robin Cantor⁴

¹Jet Propulsion Laboratory/California Institute of Technology, Pasadena, USA

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³SUNY at Buffalo, Buffalo, USA

⁴Star Cryoelectronics, Santa Fe, USA

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W4K2.1583 Terahertz Photomixing in InP/InGaAs UTC-PD Integrated with TEM Horn Antennas

Alexandre Beck¹, Mohammed Zaknoue¹, Emilien Peytavit¹, Tahsin Akalin¹, Guillaume Ducournau¹, Jean F. Lampin¹, Francis Mollot¹, Francis Hindle², Chun Yang², Gael Mouret²

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W4K3.1577 Microwave and Terahertz Detection in Bundles of Single-Wall Carbon Nanotubes

Sigfrid K. Yngvesson, Kan Fu, Bo Fu, Ric Zannoni, Stephan H Adams, Amine Ouarroui, Enrique Carrion, Jason Donovan, Martin Muthee, John Nicholson, Eric Polizzi

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W4K4.1335 Antenna-Coupled GaAs SBD Detectors for 100 GHz Band Radiation

Takashi Uchida¹, Kousuke Hayashi¹, Takashi Furuya², Takashi Tachiki¹, Toshitaka Idehara², Yoshizumi Yasuoka²

¹National Defense Academy, Yokosuka, Japan

²Fukui University, Fukui, Japan

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W4K5.1705 THz Detection by Correlated 2D Electron Systems

Andrey Chebotarev, Galina Chebotareva

PhysTech Lab, Stanford, USA

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Session W4U: High Power and Gyrotrons 3

Chair: Jim Allen

Wednesday 4:00 - 5:30 pm

Room 101 Guggenheim

W4U1.1672 Coherent Synchrotron Radiation Measurements in the THz Region at the CLS Far Infrared Beamline [keynote]

Timothy E. May¹, John C. Bergstrom¹, Les O.Dallin¹, Dominique R.T. Appadoo²

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W4U2.1634 Next Generation ECE Imaging: Status and Plans for TEXTOR

Calvin W Domier¹, Anthony JH Donné², Roger JE Jaspers², Xiangyu Kong¹, Neville C Luhmann, Jr.¹, Hyeon K Park³, Benjamin J Tobias¹, Marc J van de Pol²

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W4U3.1161 Megawatt Power Seeded FEL Amplifier Tunable in the 0.5-9THz Range

Sergei Tochitsky, Sven Reiche, Chieh Sung, Chan Joshi

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W4U4.1472 Development in Russia of the 170 GHz Gyrotron for ITER

Leonid G. Popov², Grigory G. Denisov¹, Alexander G.Litvak¹, Marina V. Agapova², Alexander Ph. Gnedenkov², Vadim O. Nichiporenko², Vadim E. Myasnikov², Evgeny M. Tai², Sergei V. Usachev², Alexey V. Chirkov¹

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W4U5.1521 Recent Experimental Results on the 170 GHz, 2 MW Co-axial Cavity Pre-Prototype Gyrotron for ITER

Tomasz Rzesnicki¹, Bernhard Piosczyk¹, Jens Flamm², Jianbo Jin¹, Stefan Kern¹, Oliver Prinz², Manfred Thumm²

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Poster Session W5D

Wednesday 5:30 - 7:00 pm

Dabney Garden

W5D1.1470 Optimization of Material Thickness for THz-TDS

Withawat Withayachumnankul, Bernd M. Fischer, Derek Abbott

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W5D2.1651 The Cornell Caltech Atacama Telescope (CCAT)

Simon J.E. Radford¹, Riccardo Giovanelli², Thomas ASebring², Jonas Zmuidzinas¹

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W5D2.1787 Compact, High Power EIK sources used for ESR and NMR

Brian Steer¹, Mark Hyttinen¹, Albert Roitman¹, Peter Horoyski¹, Graham M Smith², David R Bolton², Paul A.S. Cruickshank², Duncan A Robertson²

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W5D3.1467 THz Spectroscopy of Superionic Conducting Glasses **Teruyoshi Awano**

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W5D4.1156 Terahertz Spectrum of Cr³⁺:LiSrAlF₆ Crystal

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W5D5.1664 Millimeter Wave Spectroscopy of Titanium Monoxide and Titanium Dioxide

Patrik Kania¹, Thomas F. Giesen², Holger S. P.Müller², Stephan Schlemmer², Sandra Brünken³

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W5D6.1588 Determination of FIR Laser Wavelength Using Precise Refractive Index Measurement Method of Optical Etalon

Kazuya Nakayama¹, Akihiro Matsubara¹, Takahiro Kaneba¹, Shigeki Okajima¹, Kazuo Kawahata², Kenji Tanaka², Tokihiko Tokuzawa², Tsuyoshi Akiyama², Haruo Ohkuma³

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W5D7.1561 THz Spectroscopy of ZnTe and GaSe

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W5D8.1657 Terahertz Transmission Spectroscopy of Chalcogenide Glasses

S K Sundaram, Brian J Riley, Jarrod V Crum

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W5D9.1771 A High-Efficiency Four-Frequency Mode Converter Design with Small Output Angle Variation for a Step-Tunable Gyrotron

Shaolin J Liao¹, Ronald J Vernon¹, Jeffrey Neilson²

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W5D10.1348 Search for the Core Materials of THz Liquid-Core Fibers

Lei Zhou, Weiwei Xu, Biaobing Jin, Jian Chen, Lin Kang, Peiheng Wu

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W5D11.1189 Real-Time Shadow Projection Millimeter-Wave Imaging Using Visible Continuum from a Slab of the Cs-Xe DC Discharge

Mikhail S. Gitlin, Valery V. Golovanov, Alexander I. Tsvetkov, Viktor V. Zele-nogorsky

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W5D12.1625 Miniature Elliptical Substrate Lenses for Millimeter-Wave Imaging

Xiangyu Kong, Calvin W Domier, Neville C Luhmann

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W5D13.1414 Texture Segmentation Based Anomaly Detection in Remote Sensing Images

Delian Liu, Guojing He, Jianqi Zhang

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W5D14.1404 Comparative Study of Coaxial Bragg Reflector with Windowing Technique

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W5D15.1236 Thin-Film Measurements with THz-Radiation

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W5D16.1599 Ultrafast Changes In The Far-Infrared Conductivity Of Carbon Nanotubes

Christian Frischkorn, Tobias Kampfrath, Konrad von Volkmann, Luca Perfetti, Martin Wolf

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W5D17.1531 De-exciting Rydberg Atoms Using a Half-Cycle THz Pulse Train

Pankaj K Mandal, Kourosh Afrousheh, Andrew Speck

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W5D18.1737 THz Long Range Plasmonic Waveguide in Membrane Topology

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W5D19.1146 Performance Characteristics of a Reflector Ultra Wide-band Impulse Radiating Antenna

Sidhartha Ghosh, Binay Sarkar, Shailesh Kumar Pandey

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W5D20.1325 Dielectric Fiber Based Splitters, Couplers and Endoscopes for Sub-THz Frequencies

Christian Joerdens¹, Kin L Chee², Ibraheem AIAI-Naib¹, Soeren Peik², Gerhard Wenke², Martin Koch¹

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W5D21.1273 Study of Cylindrically Periodic Dielectric Waveguides at Submillimeter Waves

Nuria Llombart, Peter H. Siegel

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W5D22.1678 THz Multi-frequency Resonance Filter

J.K. So¹, M.A. Seo¹, D.S. Kim¹, J.H. Kim², S.S. Chang², J.H. Son³, G.S. Park¹

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W5D23.1132 Millimeter Wave Radiator: Actively and Passively Excited Sinusoidal PCB Strip and Microstrip Antennas

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W5D24.1175 Design and Fabrication of a 100-GHz Channel-Drop Filter

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W5D25.1686 FDTD and PSTD Simulations for W-Band Linear Tapered Slot Antenna

Hong-Xing Zheng, Li-Ying Feng, Ying Liu, Dan Cheng

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W5D26.1526 A 10kW W-Band Gyro-BWO Using a Helically Corrugated Waveguide

Craig R Donaldson, Wenlong He, Alan D.R. Phelps, Fengping Li, Adrian W Cross, Kevin Ronald, Alan R Young, Colin G Whyte

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W5D27.1669 High Power THz Radiation from a Cylindrical Grating Structure Using a High Current Relativistic Electron Beam

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W5D28.1270 A THz Gyrotron FU CW III with a 20T Superconducting Magnet

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W5D29.1411 Gyrotron Mode Competition Calculations: Investigations on the Choice of Numerical Parameters

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W5D30.1232 A Harmonic Multiplying Gyrotron Traveling Wave Amplifier at Ka Band Developed in IECAS

Jirun Luo, Guangjiang Yuan, Yansheng Zhang, Wei Guo, Min Zhu, Chongqing Jiao, Yin Li, Tao Zhang, Haiyan Sun, Yuantao Luan, Chi Zhang, Jian Cui

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W5D31.1143 Polarization THz Spectroscopy in High Pulsed Magnetic Fields in Voigt and Faraday Geometries

Vladimir B. Anzin¹, Sergey P. Lebedev¹, Alexander A. Mukhin¹, Oleg E. Porodinkov¹, Anatoly S. Prokhorov¹, Igor E. Spektor¹, Michael N. Kazeev², Vladimir F. Kozlov², Yuri S. Tolstov²

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W5D32.1675 Measurement and Modeling of CPW Transmission Lines and Power Dividers on Electrically Thick GaAs Substrate to 220GHz

Lai Bun Lok¹, Chi-Jeon Hwang¹, Harold M. H. Chong², Khaled Elgaied¹, Iain G. Thayne¹

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W5D33.1423 Towards a 4 MW 170 GHz Coaxial Gyrotron Resonator Design

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W5D34.1310 Calculation and Design of an Experimental Verification of Coaxial Gyrotron with Two Beams

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W5D35.1332 Effects of Self-Fields on Growth Rate in a Free-Electron Laser with Planar Wiggler Magnetic Field

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W5D36.1344 Electronic Charge Pumping in Quantum Nanoring under Harmonic Signals

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W5D37.1309 Interaction of Electron Beam-Surface Plasmon in Planar Structures

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W5D38.1612 Quasi-Optical Notch Filters for Plasma Imaging Applications

Tianran Liang, Calvin W. Domier, Zuowei Shen, Neville C. Luhmann, Jr.

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W5D39.1738 Antenna-Coupled Direct Detectors for Millimeter-wave and Submillimeter-wave Focal Plane Arrays

Hooman Kazemi

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W5D40.1611 Vacancy Effects on Optical Gap in GaAs in The Presence of Spin Orbit Interaction

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W5D41.1774 Excitation of Backward Waves in the Beam Tunnel of a High Power Gyrotron

Jiao YU, Thomas M Antonsen, Gregory S Nusinovich

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W5D42.1486 Optimizing Two-Dimensional Tilted-Front Laser Pulses for Efficient Terahertz Generation

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W5D43.1581 Efficient Optical-to-Terahertz Conversion of Femtosecond Laser Pulses Propagating Along a Sandwich Structure with Thin LiNbO₃ Core

Sergey B. Bodrov¹, Andrey N. Stepanov¹, Boris V. Shishkin¹, Igor E. Ilyakov¹,

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W5D44.1440 Generation of Intense Terahertz Radiation from Laser-Produced Plasma of Metal Foil Target

Shigeki Nashima¹, Kohei Shimizu¹, Makoto Hosoda¹, Hiroshi Murakami², Satoshi Orimo², Koichi Ogura², Michiaki Mori², Akito Sagisaka², Hiroyuki Daido²

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W5D45.1649 Improved Performance of Hybrid Electronic Terahertz Generators

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W5D46.1401 Particle-In-Cell Simulation of 100 GHz Reentrant Linear Magnetron

Jung-Il Kim, Seok-Gy Jeon, Yun-Sik Jin, Geun-Ju Kim, Dae-Ho Kim, Sun-Shin Jung

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W5D47.1317 Design of Superconducting Terahertz Digicam
Hiroshi Matsuo¹, Yasunori Hibi¹, Hirohisa Nagata², Hidero Arai³, Seiichiro Ariyoshi⁴, Chiko Otani⁴, Hirokazu Ikeda², Mikio Fujiwara⁵

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W5D48.1313 Homodyne Mixing at 150 GHz in a High Electron Mobility Transistor

Michele Ortolani¹, Alessandra Di Gaspare¹, Ennio Giovine¹, Florestano Evangelisti¹, Andrea Doria², Emilio Giovenale², Gian Piero Gallerano², Giovanni Messina², Ivan Spassovsky², Antonio Cetronio³, Claudio Lanzieri³, Marco Peroni³, Vittorio Foglietti¹

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W5D49.1266 Tunable InGaAs/InAlAs/InP Far-IR Detector Based On Plasmon Resonance

Robert E. Peale¹, Himanshu Saxena¹, Walter R.Buchwald²

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W5D50.1487 Investigation of THz Radiation Generation in a Laser Spark of Axicon Discharge

Rinat A. Akhmedzhanov, Igor E. Ilyakov, Vyacheslav A. Mironov, Evgeny V. Suvorov, Daniil A. Fadeev, Boris V. Shishkin

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7:00 - 9:00 pm

IOC/LOC Dinner

La Canada (by invitation)

Thursday, September 18, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Thursday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks R1P

Chair: Terry Parker

Thursday 9:00 - 10:30 am

Beckman Auditorium

R1P1.1734 High Power Gyrotrons: Development and Applications

Alexander Litvak

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Corresponding author: Alexander Litvak, litvak@appl.sci-nnov.ru

R1P2.1739 Infrared, Millimeter, and Terahertz Waves: New Innovations and Applications for Cultural Heritage

Maurizio Seracini¹, Gian Piero Gallerano², Gianfranco Morelli³, Falko Kuester¹

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²ENEA, Department of Physics Technologies and New Materials, Frascati, Italy

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10:30 - 11:00 am

Coffee Break

Dabney Garden

Session R2A: Spectroscopy: Novel Techniques

Chair: Xuechu Shen

Thursday 11:00 - 12:30 pm

Room 155 Arms

R2A1.1547 Terahertz Transfer onto a Telecom Optical Carrier [keynote]

Sukhdeep S Dhillon¹, Stefano Barbieri², Carlo Sirtori²

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R2A2.1234 200 Hz Rapid Scan Fiber-coupled Terahertz Time Domain Spectroscopy System

Frank Ellrich¹, Daniel Molter¹, Tristan Weinland², Michael Theuer², Joachim Jonuscheit¹, Rene Beigang¹

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R2A3.1274 Enhancement of Optical Rectification for THz Amplification in One-Dimensional Photonic Crystals

Noriaki Tsurumachi¹, Hideto Shirai¹, Tatsuya Kokuhata¹, Hayato Miyagawa¹, Shyun Koshiba¹, Shunsuke Nakanishi¹, Hiroshi Itoh¹, Masanori Hangyo²

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R2A4.1619 Toward Standoff Distance Terahertz Wave Sensing
Jianming Dai¹, Nicholas Karpowicz¹, Qian Song¹, Cunlin Zhang², X.-C. Zhang¹

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R2A5.1324 Precise Frequency Measurement of Sub-THz Test Source Referring to as Terahertz Frequency Comb

Ryotaro Nakamura, Shuko Yokoyama, Takeshi Yasui, Tsutomu Araki

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Session R2B: Applications in Biology & Medicine 4

Chair: Philip Ashworth

Thursday 11:00 - 12:30 pm

Room 201 E. Bridge

R2B1.1587 Terahertz Near-Field Imaging of Biomolecular Nanostructures [keynote]

Jeonghoi Kim, Hongkyu Park, Euna Jung, Younho Han, Kiwon Moon, Mee-Hyoun Lim, Haewook Han

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R2B2.1519 Millimeter Wave Irradiation and Invasion into Living Bodies using AR Waveguide Vent Antennas and Gyrotron

Masato Teranaka¹, Akitaka Doi¹, Isamu Ogawa², Tomohiro Saito², Toshihisa Idehara², Toshiaki Tatsukawa³

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R2B3.1153 Human Skin as Arrays of Helical Antennas in the Millimeter and Submillimeter Wave Range

Yuri Feldman, Alexander Puzenko, Paul Ben Ishai, Andreas Caduff, Aharon J Agranat

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R2B4.1381 Studying Protein Dynamics in Aqueous Solutions through Linear and Non-linear THz Spectroscopy

Thomas Feil, Takanori Uzawa, Kevin W Plaxco, S. James Allen

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R2B5.1229 The Effects of Formalin Fixing on Terahertz Properties of Biological Samples

Yiwen Sun, Emma Pickwell-MacPherson

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Session R2G: Imaging 6

Chair: Frank Hegmann

Thursday 11:00 - 12:30 pm

Room 22 Gates

R2G1.1371 Low Noise Radiometers for Passive Millimeter Wave Imaging [keynote]

Jonathan J Lynch¹, Joel N Schulman², James HSchaffner¹, Harris P Moyer¹, Yakov Royter¹, Perry A Macdonald¹, Brian Hughes¹

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R2G2.1779 Active MMW Multi-Parametric Imaging Technique for Security Applications.

Leonid V. Volkov, Alexander I. Voronko, Natalie L. Berendakova

Secomtech Ltd., Moscow, Russia

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R2G3.1191 A 585 GHz Annular-Slot Antenna Coupled Two-Dimensional Focal-Plane Array Utilizing Twin-HEB Devices

Lei Liu, Rebecca R. Percy, Haiyong Xu, Guoguang Wu, Arthur W. Lichtenberger, Robert M. Weikle, II

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R2G4.1474 Polarization Information for Terahertz Imaging

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R2G5.1249 Sub-Terahertz Imaging for Construction Materials

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Session R2K: Heterodyne Receivers**Chair: Hans Hartnagel****Thursday 11:00 - 12:30 pm****Room 119 Kerckhoff**

R2K1.1522 First Light From the Superconducting Integrated Receiver on Board Terahertz Limb Sounder TELIS [keynote]

Pavel de Yagoubov¹, Gert de Lange¹, Ruud Hoogeveen¹, Arno de Lange¹, Valery Koshelets²

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R2K2.1272 A 0.2-0.5 THz Heterodyne Receiver Based on a Photonic Local Oscillator and a Superconductor-Insulator-Superconductor Mixer
Satoshi Kohjiro¹, Kenichi Kikuchi¹, Masaaki Maezawa¹, Tomofumi Furuta², Atsushi Wakatsuki², Naofumi Shimizu³, Tadao Nagatsuma³, Yuichi Kado³, Hiroshi Ito², Akira Shoji¹

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R2K3.1566 Development of the 787-950 GHz ALMA Band 10 Cartridge
Yoshinori Uzawa¹, Takafumi Kojima², Matthias Kroug¹, Yasunori Fujii¹, Massimo Candotti¹, Wenlei Shan³, Masanori Takeda⁴, Keiko Kaneko¹, Sergey Shitov¹, Ming-Jye Wang⁵

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R2K4.1757 Sensitive Broadband SIS Receivers for Microwave Limb Sounding

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R2K5.1515 A 320-360 GHz Sub-Harmonically Pumped Image-Rejection Mixer for Earth Observation Applications

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12:30 - 1:30 pm	Lunch Break JIRMMW Editorial Board luncheon	Dabney Garden Library Room, Athenaeum (by invitation)
12:30 - 2/4:00 pm	Guest Program	Norton Simon & Gamble House

Session R3A: Transmission Lines

Chair: Dan Mittleman

Thursday 2:00 - 3:30 pm

Room 155 Arms

R3A1.1314 A Sub-Wavelength Holes Diffraction Radiation Array [keynote]

Shenggang Liu, Min Hu, Yaxin Zhang, Yuebao Li, Renbin Zhong

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R3A2.1428 Numerical Analysis of Complex Mirror Transmission Lines

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R3A3.1533 Surface Plasmon Polariton Generation on Metal Surface: From Nano-optical to Terahertz Frequency Regime

Dai-sik Kim¹, Jihun Kang², Hyunwoo Kihm¹, Kwanggeol Lee¹, Minah Seo¹, Kwangjun Ahn¹, A. J. L. Adam³, Q-Han Park², P. C. M. Planken³

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R3A4.1544 Numerical and Experimental Investigations of a Diplexer for Power Combination and Switching of High-power Millimeter Waves

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R3A5.1567 Mode Conversion Losses in ITER Transmission Lines

David S Tax, E Nicholas Comoltey, Seong-Tae Han, Michael A Shapiro, Jagadishwar R Sirigiri, Richard J Temkin, Paul P Woskov

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Session R3B: Materials: Periodic and Meta 3**Chair: Xiang Zhang****Thursday 2:00 - 3:30 pm****Room 201 E. Bridge****R3B1.1373 Active Terahertz Metamaterials [keynote]****John F O'Hara¹, Hou-tong Chen¹, Abul K Azad¹, Evgneya Smirnova¹, Willie J Padilla², Richard D Averitt³, Antoinette J Taylor¹**¹*Los Alamos National Laboratory, Los Alamos, USA*²*Boston College, Boston, USA*³*Boston University, Boston, USA*

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R3B2.1525 Bulk Negative Index Metamaterial Operating at THz Frequencies**Oliver Paul, Christian Imhof, Benjamin Reinhard, Remigius Zengerle, René Beigang***University of Kaiserslautern, Kaiserslautern, Germany*

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R3B3.1592 Highly Birefringent Terahertz Plastic Photonic Crystal Fibers**Younho Han, Minsu Cho, Jeonghoi Kim, Hongkyu Park, Euna Jung, Kiwon Moon, Haewook Han***Pohang University of Science and Technology, Pohang, Korea*

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R3B4.1636 Polarization Selective Terahertz Photonic Crystal Slab Waveguide**Khadijeh Bayat, Sujeet K Chaudhuri, Safieddin Safavi-Naeini***University of Waterloo, Waterloo, Canada*

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R3B5.1480 Terahertz Photocurrents in Heterostructures with One-Dimensional Lateral Periodic Potential**Peter Olbrich¹, Roghaiyeh Ravash¹, Tobias Feil¹, Sergey D. Danilov¹, Juri Allerdings¹, Dieter Weiss¹, Eougenious L. Ivchenko², Sergey D. Ganichev¹**¹*Terahertz Center, University of Regensburg, Regensburg, Germany*²*A.F. Ioffe Institute, St. Petersburg, Russia*

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Session R3G: Sources 2**Chair: Alain Maestrini****Thursday 2:00 - 3:30 pm****Room 22 Gates****R3G1.1766 Tunable Broadband Frequency-Multiplied Terahertz Sources [keynote]****John S. Ward¹, Goutam Chattopadhyay¹, John Gill¹, Hamid Javadi¹, Choonsup Lee¹, Robert H. Lin¹, Alain Maestrini², Frank Maiwald¹, Imran Mehdi¹, Erich Schlecht¹**

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R3G2.1339 Terahertz Raman Laser Based on Silicon Doped by Phosphorus

Heinz-Wilhelm Hübers¹, Sergey Pavlov¹, Ute Böttger¹, Roman Zhukavin², Valery Shastin², Britta Redlich³, Nikolai Abrosimov⁴, Helge Riemann⁴, Niels Hovenier⁵

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R3G3.1699 AIP/GaP Quantum Wells for Implementing Intersubband Devices in the 30-60 μm Wavelength Region

M. Goiran¹, M. P. Semtsiv², W. T. Masselink², J. Leotin¹

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R3G4.1422 Frequency Measurement in THz Domain by using Femto-second Laser Frequency Comb

Gael Mouret¹, Robin Bocquet¹, Francis Hindle¹, Arnaud Cuisset¹, Chun Yang¹, Giovanni D Rovera²

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R3G5.1606 Multiplier-based Sources of Terahertz Power

Thomas W Crowe, David W Porterfield, Jeffrey L Hesler

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Session R3K: Advanced Components

Chair: Ullrich Pfeiffer

Thursday 2:00 - 3:30 pm

Room 119 Kerckhoff

R3K1.1723 Plasma Wave Terahertz Electronics [keynote]

Michael Shur

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R3K2.1717 Porous Fiber: Low Loss, Low Dispersion Waveguide For THz Transmission

Shaghik Atakaramians, Shahraam Afshar V., Bernd M. Fischer, Derek Abbott, Tanya M. Monro

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R3K3.1297 Terahertz Radiation with Cylindrical Mimicking Surface Plasmons Wave Structure

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R3K4.1233 REconfigurable Terahertz INtegrated Architecture (RETINA)

Stepan Lucyszyn, Yun Zhou

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R3K5.1586 The Bias II Feedback System: Understanding and Improving Stability in NbN HEB Terahertz Receivers

Ric Zannoni, Sigfrid Yngvesson

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session R4A: Gyrotrons 4

Chair: Mikhail Glyavin

Thursday 4:00 - 5:30 pm

Room 155 Arms

R4A1.1695 High Power Gyrotron Development for Fusion Application [keynote]

Keishi Sakamoto, Ken Kajiwara, Atsushi Kasugai, Yasuhisa Oda, Takayuki Kobayashi, Koji Takahashi, Noriyuki Kobayashi, Shinichi Moriyama, Tsuneyuki Fujii

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R4A2.1512 Efficiency Enhancement of Gyrotron-Based Systems for Technological Applications

Gregory G Denisov, Yuri V Bykov, Mikhail Yu Glyavin, Mikhail M Morozkin, Alexey G Luchinin, Dmitry I Sobolev

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R4A3.1550 Studies on a 170 GHz, 1.0-1.3 MW, CW Conventional Cavity Gyrotron

Kartikeyan Machavaram¹, Borie Edith², Gerd Gantenbein², Stefan Kern², Bernhard Piosczyk², Manfred Thumm²

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R4A4.1366 Analytical Theory of Low Frequency Oscillations in Gyrotrons

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R4A5.1548 A Frequency Tunable Gyrotron: FU CW IV

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Session R4B: Materials: Periodic and Meta 4

Chair: Toni Taylor

Thursday 4:00 - 5:30 pm

Room 201 E.Bridge

R4B1.1732 Metamaterials: from THz to Optical Frequencies [keynote] **Xiang Zhang**

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R4B2.1691 Metamaterials for the Terahertz Gap

Willie J Padilla¹, Houtong Chen², Nathan I Landy¹, Christopher Bingham¹, Hu Tao³, Xin Zhang³, Josh MO Zide⁴, Arthur C Gossard⁴, Antoinette J Taylor², Richard D Averitt⁵

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R4B3.1192 Negative Refraction Demultiplexer Metamaterial for Millimeter Waves

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R4B4.1375 Observation of Semiconductor Test Circuits with Defects using the Laser THz Emission Microscope

Masatsugu Yamashita¹, Chiko Otani¹, Toru Matsumoto², Katsuyoshi Miura³, Kouji Nakamae³, Masayoshi Tonouchi³, Kiyoshi Nikawa⁴

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R4B5.1559 Echo Cancellation in Pulsed Terahertz Integrated Circuits

Mohammad Neshat, Abdorreza Heidari, Daryoosh Saeedkia, Safieddin Safavi-Naeini

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Session R4G: Sources 3

Chair: Tom Crowe

Thursday 4:00 - 5:30 pm

Room 22 Gates

R4G1.1754 In-Phase Power Combining of Submillimeter-wave Multipliers [keynote]

Alain E Maestrini¹, John S Ward², Goutam Chattopadhyay², Erich Schlecht², John J Gill², Choonsup Lee², Hamid Javadi², Imran Mehdi²

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R4G2.1242 Pump Beam Diameter Dependent Terahertz Generation from Surface Emitters - Experiment and Simulation

Michael Theuer¹, Christian Imhof², Garik Torosyan¹, Frank Ellrich¹, Remigius Zengerle², René Beigang³

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R4G3.1323 Terahertz Generation with an 830-nm All Semiconductor Femtosecond Laser System

Christian Joerdens¹, Tobias Schlauch², Mingyuan Li², Martin R Hofmann², Mark Bieler³, Martin Koch¹

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R4G4.1196 Tunable Terahertz Generation in Periodically Poled Structures Using Femtosecond Laser Pulses

N.E. Yu¹, C. Kang¹, H.K. Yoo¹, C. Jung¹, Y.L. Lee¹, C.-S. Kee¹, D.-K. Ko¹, K. Kitamura², S. Takekawa², J. Lee¹

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R4G5.1237 Terahertz Subwavelength Waveguide Emitters

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Session R4K: Applications in Security and Defense

Chair: Michael Shur

Thursday 4:00 - 5:30 pm

Room 119 Kerckhoff

R4K1.1174 A Method for Analyzing Active Submillimeter-Wave Imaging System Performance [keynote]

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R4K2.1374 A 3-D Millimeter-wave Luggage Scanner

Manfred Haegelen¹, Stefan Stanko¹, Helmut Essen¹, Gunnar Briesse¹, Michael Schlechtweg², Axel Tessmann²

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R4K3.1318 Broadband Terahertz Time-Domain Spectroscopy of Drugs-of-Abuse Mixtures and 'Street' Samples

Andrew D Burnett¹, Wenhui Fan¹, Prashanth CUpadhy¹, John E Cunningham¹, Michael Hargreaves², Tasnim Munshi², Howell GM Edwards², Giles Davies¹, Edmund H Linfield¹

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R4K4.1357 Study of Two Sporulated Bacillus Species by THz Time Domain Spectroscopy

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R4K5.1524 Numerical Analysis of Biased GaAs/AlGaAs Intersubband Raman Laser

Makoto Miura, Shin'ichi Katayama

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Poster Session R5D

Thursday 5:30 - 7:00 pm

Dabney Garden

R5D1.1396 Frequency Tunable Gyrotron Using Backward-Wave Components**Tsun-Hsu Chang¹, Toshitaka Idehara², Isamu Ogawa², L. Agusu², S. Kobayashi²**¹*Department of Physics, National Tsing Hua University, Hsinchu, Taiwan*²*Research Center for Development of Far-Infrared Region, Fukui University, Fukui, Japan*

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R5D2.1772 A Review of Millimetre Wave and Terahertz Technology for Detection of Concealed Threats**Michael C Kemp***Iconal Technology Ltd, Cambridge, United Kingdom*

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R5D3.1306 THz Ellipsometry in Theory and Experiment**Daniel R. Dietze, Damien P. Kelly, Juraj Darmo, Karl Unterrainer***Vienna Technical University, Photonics Institute, Vienna, Austria*

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R5D4.1462 Correlation of Structural and MW-MMW Dielectric Properties with Vibrational Modes in BaX_{1/3}Ta_{2/3}O₃ Complex Perovskites**Mariana I Toacsan¹, Andrei Ioachim¹, Liviu Nedelcu¹, Marian G Banciu¹, Lucian Mihut¹, Andrei Szilagyi²**¹*National Institute of Materials Physics, Bucharest, Romania*²*Military Equipment and Technologies Research Agency, Bragadiru, Romania*

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R5D5.1379 Instrumentation of Terahertz Time-domain Spectroscopic System Including Two Kinds of THz-Radiation Source**Keiko Kitagishi, Yusuke Izutani***Otsuka Electronics Co. Ltd., Hirakata, Japan*

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R5D6.1568 Understanding the Catalytic Activity of Heat Treated Carbon Nanofibres: Investigation of their Dielectric Properties at THz Frequencies**Edward P. J. Parrott¹, Axel Zeitler¹, James McGregor¹, Shu-Pei Oei², Husnu E Unalan², Swee-Ching Tan², William I Milne², Jean-Phillipe Tessonnier³, Robert Schlögl³, Lynn F Gladden¹**¹*Department of Chemical Engineering, Univ. of Cambridge, Cambridge, United Kingdom*²*Centre for Advanced Photonics and Electronics, Univ. of Cambridge, Cambridge, United Kingdom*³*Fritz-Haber Institut der Max-Planck-Gesellschaft, Berlin, Germany*

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R5D7.1293 Active Gas Sensing with Sub-terahertz Waves Reflected from a Wall

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R5D8.1696 InN Thin Films Deposition by rf Magnetron Sputtering **Mariana T Braic¹, Catalin N Zoita¹, Viorel TBraic¹, Mariana I Toacsan², Andrei Ioachim²**

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R5D9.1244 Photonic Crystals for On-Off Switching of Sub-Terahertz Electromagnetic Waves

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R5D10.1528 Vector Field Mapping of THz-Electromagnetic Wave Transmitted Through Quadruple Holes

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R5D11.1499 Poynting Vector Mapping of Terahertz Wave Transmission through Metallic Grating

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R5D12.1405 Material Scanner in the Lower Terahertz **Christian Krebs¹, Dirk Nüssler², Stephan Schneider²**

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R5D13.1647 Passive Millimeter-Wave Imaging System using a Substrate Integrated Waveguide Antenna**Benjamin Lopez-Garcia¹, Devata V.B. Murthy¹, Jose Soto-Manriquez², Alonso Corona-Chavez¹**¹Large Millimeter Telescope, INAOE, Tonantzintla, Mexico²Universidad Autonoma de Puebla, Puebla, Mexico

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R5D14.1338 THz-Wave Tomographic Imaging: An Approach via CT Reconstruction from Limited Projections**Naoki Sunaguchi¹, Yoshiaki Sasaki², Mina Kawai¹, Tetsuya Yuasa¹, Chiko Otani²**¹Yamagata University, Yonezawa, Japan²RIKEN, Sendai, Japan

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R5D15.1605 Gas rRcognition with Terahertz Time-Domain Spectroscopy and Reference-Free Spectrum: A Preliminary Study**Hungyen Lin, Withawat Withayachumnankul, Bernd M Fischer, Samuel P Mickan, Derek Abbott***The University of Adelaide, Adelaide, Australia*

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R5D16.1621 High Precision Registration Of Optical Picosecond Impulses Responses In Case Of Their Propagation In Natural And Artificial Environments**Vladimir I. Grigoryevskij¹, Maria V. Grigoryevskaya¹, Vladimir V.Khabarov¹, Sergey P. Golovachev¹, Michail T. Prilepin²**¹Institute of Radioengineering and Electronics, Russian Academy of Sciences, Fryazino, Russian Federation²Inst. of Physics of the Earth, Russian Academy of Sciences, Moscow, Russian Federation

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R5D17.1502 Phase Shift Measurement of the THz Wave with Laser Displacement Sensor**Shingo Saito¹, Norihiko Sekine², Iwao Hosako², Kiyomi Sakai¹**¹National Institute of Information and Communications Technology, Kobe, Japan²National Institute of Information and Communications Technology, Koganei, Japan

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R5D18.1287 Improved Terahertz Sensors Based on Frequency Selective Surfaces For Thin-film Sensing**Ibraheem A. I. Al-Naib, Christian Jansen, Martin Koch***Inst. for High Frequency Technology/Technical Univ. of Braunschweig, Braunschweig, Germany*

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R5D19.1188 Air-core Bandgap Terahertz Fiber with Wider Bandwidth
Yandong Gong¹, Guobin Ren², Michael Ong Ling Chuen¹, Ping Shum²

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R5D20.1453 Modeling of Dynamic Effects in a Laser-Driven Semiconductor Switch of High-Power Microwaves

Gregory G Denisov, Maxim L Kulygin, Vladimir V Kocharovskiy

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R5D21.1121 Study on Power Extraction using a Dielectric-Loaded Rectangular Waveguide

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R5D22.1482 Numerical Optimization of Smooth-Wall and Corrugated Horn Antennas

Burkhard M. Plaum

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R5D23.1350 Design Considerations to Improve the Performance of a Rectangular Microstrip Patch Antenna at THz Frequency

Aditi Sharma, G Singh, D Singh Chauhan

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R5D24.1563 Millimeter and THz Extraordinary Transmission Hole Arrays

S. A. Kutznetsov¹, V V Kubarev¹, A VGelfand², M Navarro-Cia³, M Beruete³, I Campillo⁴, M Sorolla³

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R5D25.1689 Hybrid FDTD/PSTD Simulation for Ultrawideband Microstrip Antenna

Hong-Xing Zheng, Li-Qiang Wang, Xing-Bing Ma, Cheng-Guang Sun

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R5D26.1395 W-band TE₀₁ Gyrotron Backward-Wave Oscillator with Distributed Loss

Tsun-Hsu Chang¹, Y. S. Yeh²

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R5D27.1506 Enhanced Transversal Collector Sweeping for High Power CW Gyrotrons

Stefan Illy¹, Martin Schmid¹, Harald Braune², Volker Erckmann², Heinrich P Laqua², F. Noke², F. Purps²

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R5D28.1640 Magnetron Injection Gun Measurements

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R5D29.1479 After Cavity Interaction in Gyrotrons: On the Influence of Different Models for Non-Uniform Magnetic Fields

Stefan Kern, Edith Borie

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R5D30.1469 ECRH -Antennas and In-Vessel Components for the W7-X Stellarator

Georg Michel¹, Heinrich P. Laqua¹, Volker Erckmann¹, Michael Weissgerber¹, Walter Kasperek²

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R5D31.1558 Parametrization Technique for the Preliminary Gun Design of the EU 170GHz 1MW Conventional Cavity Gyrotron for ITER **Ioannis Gr. Pagonakis¹, Stefan Illy², Miguel Silva¹, Jean-Philippe Hogge¹, Stefano Alberti¹, Konstantinos A. Avramides³, Bernard Piosczyk², Ferran Albajar⁴, Tullio Bonicelli⁴**

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R5D32.1439 THz TE CS₂ Laser

Vadim A Gorobets¹, Boris F Kuntsevich¹, Vladimir OPetukhov¹, Sergei Ja Tochitsky²

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R5D33.1190 Analysis of the Dispersion Characteristics of Gyro-TWT with Axially Periodic Dielectric and Metal Loading

Hui Wang, Hongfu Li, Yong Luo, Tingwei Zhang, Hao Li

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R5D34.1307 Nonlinear Analysis of Gyro-TWT Amplifier with Helical Interaction Waveguide

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R5D35.1180 Free-Electron Laser with Resonant Pumping

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R5D36.1767 Terahertz Response of Microfluidic-Jetted Fabricated 3D Multilayer Metamaterials

Yew Li Hor, Hee C Lim, John F Federici

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R5D37.1278 Linac Based fs-THz Program at PAL

Jaehun Park¹, Heung-Sik Kang¹, Changbum Kim¹, Bongsoo Kim¹, Taiha Joo²

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R5D38.1430 Propagating Mode Analysis and Field Reconstruction in the Corrugated Waveguides of a High Power Electron Cyclotron Heating System

Takashi Shimozuma¹, Hiroshi Idei², Michael AShapiro³, Richard J Temkin³, Shin Kubo¹, Yasuo Yoshimura¹, Hiroe Igami¹, Hiromi Takahashi¹, Takashi Notake⁴, Satoshi Ito¹, Sakuji Kobayashi¹, Yoshinori Mizuno¹, Yasuyuki Takita¹, Takashi Mutoh¹

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R5D39.1431 Analysis of Microstrip Transmission-Line on an Anisotropic Substrate

Yogendra K Awasthi, Anand K Verma

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R5D40.1450 Subspace and Wavelet-Packet Algorithms for De-Noising and Classifying Broadband THz Transients

Bernd M. Fischer¹, Xiaoxia Yin¹, Brian W.-H Ng¹, Derek Abbott¹, Roberto K. H. Galvão², Henrique M. Paiva², Sillas Hadjiloucas³, Gillian C. Walker³, John Bowen³

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³*Cybernetics, School of Systems Engineering, The University of Reading, Berkshire, UK*
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R5D41.1393 Excitation of a Pure TEMn Mode at Low Terahertz Region **Tsun-Hsu Chang, Cheng-Hsien Li, Chi-Nan Wu, Ching-Fang Yu**

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R5D42.1607 III-V Based Room Temperature THz Detectors

Unil Perera¹, Viraj Jayaweera¹, Steven Matsik¹, Hui Chun Liu²

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R5D43.1176 Numerical Simulation of Extraction Barrier Width Effects on Terahertz Quantum Cascade Laser

J C Cao, H Li, J T Lu, Y J Han, X G Guo

State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China

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R5D44.1333 A Pump Enhanced ns-OPO for THz Generation

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R5D45.1243 A Room Temperature NbN Bolometer for Terahertz Detection

X. H. Lu¹, L. Kang¹, J. Chen¹, Y. Y. Zhong¹, Y. Jiang¹, M. Liang¹, Q. J. Yao², S. C. Shi², P. H. Wu¹

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R5D46.1509 The First Experimental Results of mm-Wave Generation by Photomixing

Sungil Kim, Han-Cheol Ryu, Seungbeom Kang, Se Young Jeong, Seunghwan Lee, Daewon Kang, Minhwan Kwak, Sang Kuk Choi, Mun Cheol Paek, Kwang-Yong Kang
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IRMMW-THz 2008 Terahertz for Life

September 15 – 19, 2008 California Institute of Technology . Pasadena . California

7:00 - 9:00 pm	Banquet	Athenaeum
9:00 - 9:15 pm	Special Thanks and Presentations	Beckman Auditorium
9:15 - 10:00 pm	Special Show by Michael Shermer	Beckman Auditorium

Friday, September 19, 2008

7:45 - 8:30 am	Coffee	Dabney Garden
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Closing Remarks and Announcements

Friday 8:30 - 9:00 am	Beckman Auditorium
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Plenary Talks F1P Chair: Rick Temkin

Friday 9:00 - 10:30 am	Beckman Auditorium
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F1P1.1756 Cosmic Background and Space Science at THz Frequencies **Andrew Lange**

California Institute of Technology, Pasadena, CA 91125, USA

Corresponding author: Andrew Lange, ael@astro.caltech.edu

F1P2.1730 High Frequency Dynamic Nuclear Polarization in Solids and Liquids: Why Two Electrons Are Better Than One

Robert G. Griffin

MIT, Cambridge, MA, USA

Corresponding author: Robert Griffin, rgg@mit.edu

10:30 - 11:00 am	Coffee Break	Dabney Garden
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Session F2A: Gyrotrons 5 Chair: Gregory Denisov

Friday 11:00 - 12:30 pm	Room 155 Arms
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F2A1.1413 Status of the Development of the 2MW, 170GHz Coaxial Cavity Gyrotron for ITER [keynote]

Stefano Alberti¹, Ferran Albajar², Kostas Avramides³, Patrick Benin⁴, William Bin², Tullio Bonicelli⁵, Alex Bruschi¹, Sante Cirant⁶, Emmanuel Droz¹, Oljerd Dumbrajs¹, Damien Fasel¹, Franco Gandini⁵, Timothy Goodman¹, Jean-Philippe Hogge¹, Stefan Illy⁷

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F2A2.1347 A Wideband 140-GHz, 1-kW Confocal Gyro-Traveling Wave Amplifier**Colin D Joye, Michael A Shapiro, Jagadishwar R Sirigiri, Richard J Temkin***Massachusetts Institute of Technology, Cambridge, USA*

Corresponding author: Colin D Joye, cjoye@alum.mit.edu

F2A3.1207 Operation Improvement of CW 300 GHz Gyrotron FU CW I
Teruo Saito¹, Tomoaki Nakano¹, Yoshinori Tatematsu¹, Seitaro Mitsudo¹, Toshitaka Idehara¹, Vladimir E. Zapevalov²¹*University of Fukui, Fukui, Japan*²*Institute of Applied Physics, Nizhny Novgorod, Russia*

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F2A4.1477 The Design of a 390 GHz Gyrotron Based on a Cusp Electron Gun**Fengping Li, Wenglong He, Alan D.R. Phelps, Adrian W. Cross, Craig R. Donaldson, Kevin Ronald***University of Strathclyde, Glasgow, UK*

Corresponding author: Fengping Li, fengping.li@strath.ac.uk

Session F2B: Detectors 3**Chair: Boris Karasik****Friday 11:00 - 12:30 pm****Room 201 E. Bridge****F2B1.1564** A CMOS Focal-Plane Array for Terahertz Imaging [keynote]
Ullrich R Pfeiffer¹, Erik Öjefors¹, Alvydas Lisauskas², Diana Glaab², Francesco Voltolina³, Viny M Fonkwe Nzogang³, Peter Haring Bolivar³, Hartmut G Roskos²¹*High-Frequency & Communication Technology, Univ. of Wuppertal, Wuppertal, Germany*²*Physikalisches Institut, Johann Wolfgang Goethe-Universität Frankfurt, Frankfurt, Germany*³*High-Frequency and Quantum Electronics, University of Siegen, Frankfurt, Germany*

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F2B2.1682 Highly Sensitive and Frequency-Tunable THz Detector Using Carbon Nanotube Quantum Dots**Yukio Kawano, Tomoko Fuse, Seiko Toyokawa, Takeo Uchida, Koji Ishibashi***RIKEN (The Institute of Physical and Chemical Research), 2-1 Hirosawa, Wako, Japan*

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F2B3.1530 THz Detection by Field Effect Transistors: Antenna and High Magnetic Field Effects**Jerzy Lusakowski¹, Maciej Sakowicz¹, Krzysztof Karpierz¹, Wojciech Knap², Marian Grynberg¹**¹*Institute of Experimental Physics, University of Warsaw, Warsaw, Poland*²*Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

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F2B4.1735 Towards Traceable Radiometry in the Terahertz Region **Ralf Müller¹, Heinz-Wilhelm Hübers², Peter Meindl¹, Heiko Richter², Andreas Steiger¹, Lutz Werner¹**

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²German Aerospace Center (DLR), Berlin, Germany

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Session F2G: Microfabrication

Chair: Ken Kreischer

Friday 11:00 - 12:30 pm

Room 22 Gates

F2G1.1741 Micro-fabricated Micro-coaxial Millimeter-wave Components [keynote]

Zoya Popovic¹, Kenneth Vanhille², Negar Ehsan¹, Evan Cullens¹, Yuya Saito¹, Jean-Marc Rollin², Christopher Nichols², David Sherrer², Daniel Fontaine³, Dejan Filipovic¹

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²Rohm and Haas Electronics, Blacksburg, USA

³BAE Systems, Nashua, USA

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F2G2.1761 Deep Reactive Ion Etching Based Silicon Micromachined Components at Terahertz Frequencies for Space Applications

Goutam Chattopadhyay, John S. Ward, Harish Manohara, Risaku Toda

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

Corresponding author: Goutam Chattopadhyay, goutam@jpl.nasa.gov

F2G3.1642 Novel RF MEMS Mechanically Tunable Dielectric Phase Shifter

Nutapong Somjit, Göran Stemme, Joachim Oberhammer

Royal Institute of Technology, Stockholm, Sweden

Corresponding author: Nutapong Somjit, nutapong@ee.kth.se

F2G4.1655 Broadband Complex Permittivity Measurements of Microwave Interconnects and Bonding Materials

Nahid Rahman¹, Konstantin A Korolev¹, Mohammed N Afsar¹, Rudy Cheung², Maurice Aghion²

¹Tufts University, Medford, USA

²Microwave Engineering Corporation, North Andover, USA

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Session F2K: Instruments and Techniques **Chair: Daryoosh Saeedkia**

Friday 11:00 - 12:30 pm

Room 119 Kerckhoff

F2K1.1750 THz Spectroscopy in the Lab and at Telescopes [keynote]

Geoffrey A Blake

Caltech, Pasadena, USA

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F2K2.1762 Radiometers for Exploration of Moons of the Outer Planets

Anders Skalare, Goutam Chattopadhyay, Erich Schlecht, John Gill, Mark Allen, Ken Cooper, Samuel Gulkis, Imran Mehdi, Peter Siegel, John Pearson

Jet Propulsion Laboratory, Pasadena, USA

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F2K3.1663 CASIMIR: The Caltech Airborne Submillimeter Interstellar Medium Investigations Receiver

Michael L Edgar¹, Andrew I Harris², Alexandre Karpov¹, Sean Lin¹, David Miller¹, Simon J E Radford¹, Frank Rice¹, Jonas Zmuidzinas¹

¹*California Institute of Technology, Pasadena, USA*

²*University of Maryland, College Park, USA*

Corresponding author: Simon J E Radford, sradford@caltech.edu

F2K4.1485 Broadband Antireflective Structures for the THz Spectral Range Fabricated on High Resistive Float Zone Silicon

Claudia Brueckner¹, Thomas Kaesebier², Stefan Riehemann¹, Gunther Notni¹, Ernst-Bernhard Kley², Andreas Tuennermann¹

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12:30 - 5:00 pm

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(by pre-registration only)

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Balakrishnan, Jegathisvaran	T5D44.1777	Bodrov, Sergey B.	W5D42.1486, W5D43.1581
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Bandurkin, Ilya V.	M2A4.1449	Bohn, Matthew J	T2K4.1622, T5D40.1590
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Bastian, Martin	T2K2.1483	Borchard, Philipp	M2A5.1227, T2A2.1608, R5D28.1640
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		Brown, Elliott R.	M2K2.1668, M4B4.1744, T4B1.1671

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Brusentsova, Tatiana E.	W4B5.1265	Chen, Xiaohui	W5D14.1404
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Fu, Kan	W4K3.1577	Gitlin, Mikhail S.	W5D11.1189
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Fu, Wenjie	W5D34.1310	Gladden, Lynn F	R5D6.1568, M4B5.1582, M5D42.1576, T3K5.1573
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Gallerano, Gian Piero	R1P2.1739, T2G2.1628, W5D48.1313	Gom, Brad	M4A4.1364
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		Goodhue, William D.	T4G3.1704

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Harlow, George	W4B5.1265		
Harris, Andrew I	F2K3.1663		
Harris, James S	M4K5.1383		
Hartnagel, Hans L	W4G4.1601, T4K2.1251		
Hartrott, Michael V.	T4A3.1459		

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R3K3.1297		Jhe, W.-H.	W2B5.1684
Huang, Shengyang	M2B3.1277	Ji, Young Bin	T5D20.1231
Hübers, Heinz W	W2K4.1302, F2B4.1735, M3B1.1518, R3G2.1339	Jiang, Y.	R5D45.1243
Huck, Johann	W2G3.1208	Jiao, Chong-Qing	M5D29.1200
Hughes, Brian	R2G1.1371	Jiao, Chongqing	W5D30.1232
Huh, Yong-Min	M3G3.1464, T2B4.1424	Jin, Biaobing	W5D10.1348
Hurlbut, Walter C	M4K5.1383, W5D45.1649	Jin, Jianbo	T5D29.1248, W4U5.1521
Hwang, Chi-Jeon	W5D32.1675	Jin, Y. S.	M5D5.1239, M5D2.1514, W3B4.1240, W5D46.1401
Hwang, Hak-In	T5D45.1667	Joerdens, Christian	R4G3.1323, T5D41.1327, W5D20.1325
Hytinen, Mark	W5D2.1787	Johannes, Winfried	M3A2.1369
Idehara, Toshitaka	M2A3.1267, M5D26.1308, M5D32.1209, M5D9.1660, T5D28.1432, T5D26.1312, W4K4.1335, W5D28.1270, R2B2.1519, R4A5.1548, R5D1.1396, F2A3.1207	Johnson, Keith	T5D19.1610
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Igami, Hiroe	R5D38.1430	Jones, Inke M	W2B4.1390
Ikeda, Hirokazu	W5D47.1317	Jones, William	M4B5.1582, T3K5.1573
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Illy, Stefan	F2A1.1413, R5D27.1506, R5D31.1558, T4A5.1412	Joo, Y.D.	M5D2.1514
Ilyakov, Igor E.	W5D43.1581, W5D50.1487	Jory, Howard R	T2A2.1608
Ilyenko, Kostyantyn	R5D35.1180	Joshi, Chan	W4U3.1161, M4G3.1160
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Ishibashi, Koji	F2B2.1682, M2G3.1680	Jung, Changsoo	M5D46.1674, R4G4.1196
Islam, Shany	M5D16.1264	Jung, Euna	R2B1.1587, R3B3.1592, T5D13.1584, T5D18.1579
Ito, Hiromasa	T3B2.1384	Jung, H. C.	W5D27.1669
Ito, Hiroshi	M4K2.1199, R2A3.1274, R2K2.1272	Jung, Sun-Shin	W5D46.1401
Ito, Satoshi	R5D38.1430	Kabetani, Yasuhiro	M3A5.1298
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Izutani, Yusuke	R5D5.1379	Kaesebier, Thomas	F2K4.1485
Jackson, Robert H	W3G3.1615	Kajiwar, K.	T2A5.1359, T5D32.1206, R4A1.1695
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Jang, K. H.	M5D44.1701, T3A3.1683	Kalinushkin, Viktor P	T5D31.1187
Jansen, Christian	R5D18.1287	Kaliteevski, Mikhail A	W3K4.1571
Janzen, Hal D.	M5D49.1768	Kalynov, Yuriy K.	M2A4.1449
Jaspers, Roger JE	W4U2.1634	Kamenev, Yuri E	T5D27.1221
Jastrow, Christian	M3A3.1342	Kampfrath, Tobias	M4G2.1420, W5D16.1599
Javadi, Hamid	R3G1.1766, R4G1.1754	Kan, Kanis W.C.	T2B5.1198
Jayaweera, Viraj	R5D42.1607	Kanamori, So	T3G4.1300
Jellie, Pierre	T4G4.1740	Kaneba, Takahiro	W5D6.1588
Jeon, S. G.	M5D2.1514, M5D5.1239, W3B4.1240, W5D46.1401	Kaneko, Keiko	R2K3.1566
Jeon, Tae-In	T5D20.1231	Kanemaki, Tomohiro	M5D9.1660
Jeong, Se Young	R5D46.1509	Kang, Chul	M5D46.1674, R4G4.1196
Jeong, Young Uk	M5D47.1426	Kang, Daewon	R5D46.1509
		Kang, Heung-Sik	R5D37.1278
		Kang, J. H.	M2G5.1491, R3A3.1533,

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R5D11.1499		Kim, Dai S.	M2G1.1719, T3G2.1465, W4B4.1403, R3A3.1533
Kang, Jinyoung	M3G3.1464	Kim, Geun-Ju	M5D5.1239, W3B4.1240, W5D46.1401
Kang, Kwang Y	W2K2.1546, R5D46.1509	Kim, Hyeoung Mun	T2B4.1424
Kang, Lin	W5D10.1348, R5D45.1243	Kim, J. H.	W5D22.1678
Kang, Seungbeom	R5D46.1509	Kim, J. I.	M5D2.1514
Kangaslahti, Pekka	W2G2.1694	Kim, Jae-Eun	T5D38.1493
Kania, Patrik	T3K4.1631, W5D5.1664	Kim, Jeonghoi	R2B1.1587, R3B3.1592, T5D13.1584, T5D18.1579
Kapilevich, Boris	M5D15.1130, T3K2.1139	Kim, Ji-Hong	T5D45.1667
Karasik, Boris S	W4K1.1673	Kim, Jong-Hyun	T3A3.1683
Karch, Johannes	T3K3.1475	Kim, Jong-Min	T3A3.1683
Karpierz, Krzysztof	F2B3.1530	Kim, Jung-Il	M5D5.1239, W3B4.1240, W5D46.1401
Karpov, Alexandre	F2K3.1663	Kim, Kyoungsik	M5D17.1677
Karpowicz, Nicholas	T3B4.1575, T5D19.1610, R2A4.1619	Kim, Sang-Hoon	T5D20.1231
Kasai, Shintaro	T3G4.1300	Kim, Sangin	T5D22.1255
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Kasugai, Atsushi	T2A5.1359, R4A1.1695	Kim, Sungil	R5D46.1509
Katayama, Ikufumi	T3B2.1384	Kim, Y. H.	M5D2.1514
Katayama, Shin'ichi	R4K5.1524	Kitagishi, Keiko	R5D5.1379
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Kawahata, Kazuo	W5D6.1588	Kiwa, Toshihiko	T2B3.1230
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Kawayama, Iwao	T2B3.1230	Klöppel, Frank	W2G2.1208
Kazansky, Igor V	T2A1.1468	Knab, Joseph R.	M2G1.1719, T3G2.1465
Kazeev, Michael N.	W5D31.1143	Knap, W.	M5D12.1438, T2G3.1360, F2B3.1530
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Kee, Chulsik	M5D46.1674, R4G4.1196	Ko, Do-Kyeong	M5D46.1674, R4G4.1196
Keilmann, Fritz	M2G2.1574, W3B1.1572	Ko, Youngok	M5D18.1263
Kelly, Damien P.	R5D3.1306	Kobayashi, Noriyuki	R4A1.1695
Kemp, Michael C	R5D2.1772	Kobayashi, Sakuji	R5D38.1430
Kern, Stefan	R4A3.1550, R5D29.1479, T4A5.1412, W4U5.1521, W5D29.1411, W5D33.1423	Kobayashi, Shin-ichiro	T5D26.1312, W5D28.1270, R4A5.1548, R5D1.1396
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Khanna, Suraj P	M2G4.1363, M4B2.1458, T4G2.1304	Kodituwakku, Nalaka	M4G5.1742
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Kihm, Hyunwoo	R3A3.1533	Kohler, Klaus	M3K2.1600
Kikuchi, Kenichi	R2K2.1272, T5D46.1378	Koizumi, Toshiyuki	M3B5.1197
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Kim, Changbum	R5D37.1278	Kokuhata, Tatsuya	R2A3.1274
Kim, D. S.	R5D10.1528, R5D11.1499, M2G5.1491, M5D2.1514, W2B5.1684, W5D22.1678		
Kim, Dae-Ho	W5D46.1401		

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Kolesnikova, Lucie	T3K4.1631	R5D34.1307	
Kominis, Y.	M5D19.1179	Lambert, James L.	W3A2.1715
Kondo, Jyunichi	T2B3.1230	Lambrigtsen, Bjorn	W2G2.1694
Kong, Jin Au	M5D21.1128	Lampin, J. F.	M4K3.1580, M4K4.1452, T4G4.1740, W4K2.1583, W5D18.1737
Kong, Xiangyu	W4U2.1634, W5D12.1625	Landy, Nathan I.	R4B2.1691
Kong, Yan-yan	T5D17.1280, W5D14.1404, R5D34.1307	Lange, Andrew	F1P1.1756
Konoplev, Ivan V.	M5D39.1542, W3K3.1370	Lange, Arno de	R2K1.1522
Kontos, Michalis	W2B1.1623	Lange, Gert de	R2K1.1522
Korolev, Konstantin A.	M5D6.1351, W2B2.1624, F2G4.1655	Lanzieri, Claudio	M5D47.1313
Kory, Carol L.	T3A5.1340	Laqua, Heinrich P.	R5D27.1506, R5D30.1469
Koshelets, Valery	R2K1.1522	Le Bouffant, Evarzeg	R4K4.1357, W4B1.1356
Koshiba, Shyun	R2A3.1274	Lebedev, Sergey P.	W5D31.1143
Koshurinov, Yuriy I.	M4B3.1560	Lechner, Vera	T3K3.1475
Kosugi, Toshihiko	M3A1.1451	Lechte, Carsten	T2A3.1288
Kowalczyk, Robert	T3A2.1764	Le Dréan, Yves	M2B5.1117
Kozlov, Alexander S.	M5D1.1326	Lee, Byung Cheol	M5D47.1426
Kozlov, Vlad G.	M4K5.1383, W5D45.1649	Lee, Choonsup	W2G4.1747, R3G1.1766, R4G1.1754
Kozlov, Vladimir F.	W5D31.1143	Lee, Dae-Sung	T5D45.1667
Krebs, Christian	R5D12.1405	Lee, Dong Kyu	T2B4.1424
Kreischer, Kenneth E.	T3A1.1713	Lee, Dong-Hee	T2B4.1424
Kretschmer, Karsten	T2K2.1483	Lee, Eui Su	T5D20.1231
Kroetz, Peter	W3A3.1553	Lee, J.	R4G4.1196
Kröll, J.	W3G1.1725	Lee, J. W.	M2G5.1491
Kroug, Matthias	R2K3.1566	Lee, Jaewon	M3G3.1464
Kruglov, Alexandr V.	T2A1.1468	Lee, Jongmin	M5D46.1674
Krumbholz, Norman	T2K2.1483, T5D6.1235	Lee, Jongseok	M5D36.1570
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Kubo, Shin	M5D33.1281, R5D38.1430	Lee, Kitae	M5D47.1426
Kuech, Thomas F.	M2K3.1195	Lee, Kwangchil	M5D17.1677
Kuester, Falko	R1P2.1739	Lee, Kwanggeol	R3A3.1533
Kuftin, Andrey N.	T2A1.1468	Lee, Kyung-Il	T5D45.1667
Kukutsu, Naoya	M3A1.1451	Lee, Mark	T4G1.1565
Kulipanov, Gennady N.	T5D12.1194	Lee, Seunghwan	R5D46.1509
Kulygin, Maxim L.	R5D20.1453	Lee, Soonil	W4B4.1403
Kumar, Pradeep	M5D24.1406	Lee, Sun-Goo	T5D38.1493
Kuntsevich, Boris F.	R5D32.1439	Lee, Wing-Sze	T2B5.1198
Künzel, Harald	T4B5.1322	Lee, Y. L.	R4G4.1196
Kuo, Paulina S.	M4K5.1383	Lee, Yong J.	M5D9.1660
Kurabayashi, Toru	R2G5.1249	Lee, Yong Woo	M5D47.1426
Kürner, Thomas	M3A3.1342	Legrand, Dominique	M2B2.1457
Kutznetsov, S. A.	R5D24.1563	Lei, Wenqiang	M5D30.1254
Kuzel, Petr	T5D1.1409, W3B2.1341	Leibold, Julie	W4B5.1265
Kuzmin, Sergey E.	T5D11.1358	Leitner, David	M2B1.1204
Kuznetsov, Sergei A.	T5D21.1727, W3B3.1726, M3B4.1743	Leivo, Mikko	W2G1.1722
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Kwak, Min H.	W2K2.1546, R5D46.1509	Leotin, J.	R3G3.1699
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Li, Cheng-Hsien	R5D41.1393	Longval, Yuying	W2A3.1212
Li, Fengping	W5D26.1526, F2A4.1477	Lopez-Garcia, Benjamin	R5D13.1647
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Li, Hao	R5D33.1190	Lu, J T	R5D43.1176
Li, Hongfu	M5D31.1703, R5D33.1190	Lu, X. H.	R5D45.1243
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Li, Mingyuan	R4G3.1323	Luan, Yuantao	W5D30.1232
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Li, Yuebao	R3A1.1314	Luo, Jirun	W5D30.1232
Li, Zu-an	M5D45.1454	Luo, Yong	R5D33.1190
Liang, M.	R5D45.1243	Lusakowski, Jerzy	F2B3.1530
Liang, Tianran	W5D38.1612	Luukanen, Arttu	W2G1.1722
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Liao, Shaolin J	W5D9.1771	Lynch, Candace	M4K5.1383
Lichtenberger, Arthur W.	R2G3.1191	Lynch, Jonathan J	R2G1.1371
Lim, Hanjo	T5D22.1255, W4B4.1403	Ma, Xing-Bing	R5D25.1689
Lim, Hee C	R5D36.1767	Ma, Yong	W4A4.1494
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Lin, Anjie	M4K5.1383	Machavaram, Kartikeyan	R4A3.1550
Lin, Hungyen	R5D15.1605	MacInnes, Philip	M5D39.1542, W3K3.1370
Lin, Robert H	T3A2.1764, W4G5.1765, R3G1.1766	Maeng, Inhee	M3G3.1464, T2B4.1424
Lin, Sean	F2K3.1663	Maestrini, Alain E	W4G3.1437, R3G1.1766, R4G1.1754
Linde, George J.	W2A4.1653	Maezawa, Masaaki	R2K2.1272, T5D46.1378
Linden, Kurt J.	T4G3.1704	Mahler, Lukas	M3B1.1518
Linfield, Edmund H	M2G4.1363, M4B2.1458, T4G2.1304, R4K3.1318	Maineult, Wilfried	T4G4.1740
Lisauskas, Alvydas	F2B1.1564	Maiwald, Frank	R3G1.1766
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Litvak, Boris	M5D15.1130	Maleki, Lute	W4A3.1760
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Liu, Diwei	T5D30.1290, W5D34.1310	Malygin, Sergey A	T2A1.1468
Liu, Hui Chun	R5D42.1607	Malygin, Vladimir I	T2A1.1468
Liu, Lei	M2K5.1259, M3K4.1676, R2G3.1191	Malyshkin, Sergey B	M5D1.1326
Liu, Peter	M5D6.1351	Mamer, Orval	T5D19.1610
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Liu, Ying-hui	W5D29.1411, W5D33.1423	Manohara, Harish	T3A2.1764, F2G2.1761
Liu, Zhiyang	M2K5.1259	Manuilov, Vladimir N.	M2A4.1449, M5D32.1209, T5D28.1432
Lombart, Nuria	T4K3.1763, W2G4.1747, W5D21.1273	Mao, Jiang Zheng	M5D13.1492
Löffler, Torsten	M3G1.1513, T2G4.1529	Maraghechi, Pouya P.	W3K1.1505
Logan Jr., Ronald T.	M4B4.1744, T4B1.1671	Marcadet, Xavier	W3G4.1709

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Markelz, Andrea G	T2B1.1508	Miller, David	F2K3.1663
Markert, John T	M5D9.1660	Milne, William I	R5D6.1568
Mars, Dan	T4A1.1752	Min, S.H.	W5D27.1669
Marsden, David	T3A5.1340	Miram, George	T3A4.1638
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Martirosyan, Radik M	T5D48.1173	Mishakin, S	M5D39.1542
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Masi, Silvia	W2A3.1212	Miura, Katsuyoshi	R4B4.1375
Masselink, W. T.	R3G3.1699	Miura, Makoto	R4K5.1524
Mastovsky, I.	T2A4.1545	Miyagawa, Hayato	R2A3.1274
Matheson, David N	W4G3.1437, R2K5.1515	Miyamoto, Katsuhiko	T3B2.1384
Matsik, Steven	R5D42.1607	Mizuno, Maya	T5D14.1316
Matsko, Andrey B.	T5D49.1785, W4A3.1760	Mizuno, Yoshinori	R5D38.1430
Matsubara, Akihiro	W5D6.1588	Moeller, C.P.	T2A5.1359
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Shapiro, Michael A.	T2A4.1545, T5D33.1271, R3A5.1567, R5D38.1430, F2A2.1347	Smith, III, Charlie H.	M4A5.1617, W2K5.1637
Sharma, Aditi	R5D23.1350	So, J. K.	M5D44.1701, T3A3.1683, W5D22.1678, W5D27.1669
Sharma, Vivek K	M5D7.1129	Sobakinskaya, Ekaterina A	M5D8.1554
Shastin, Valery	R3G2.1339	Sobolev, Dmitry I	R4A2.1512
Shchegolkov, Dmitry Yu	T5D39.1257, W5D24.1175	Somjit, Nutapong	F2G3.1642
Shen, Zuowei	W5D38.1612	Sommer, Rainer	M3A2.1369, W2G3.1208
Shepelev, Andrey V.	M5D43.1214, W2A5.1219	Son, J. H.	W5D22.1678

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Son, Joo-Hiuk	M3G3.1464, T2B4.1424	Sun, Wenfeng	R2G4.1474
Son, Jung Y	T5D11.1358	Sun, Yiwen	R2B5.1229
Son, Young Mok	T3A3.1683	Sun, Z	M5D20.1706
Song, Ho-Jin	R5D7.1293	Sunaguchi, Naoki	R5D14.1338
Song, Lei	M5D30.1254	Sundaram, S K	W5D8.1657
Song, Qian	R2A4.1619	Sung, Chieh	M4G3.1160, W4U3.1161
Sonnabend, Guido	W3A3.1553	Suvorov, Evgeny V.	W5D50.1487
Sorensen, Jeremy	W2G5.1632	Suzuki, Safumi	T5D42.1687
Soria, Mary	M3A4.1220	Suzuki, Toshitatsu	T2G5.1745
Sornig, Manuela	W3A3.1553	Swift, Peter	T4K4.1556, W3K4.1571
Sorolla, Mario	R4B3.1192, R5D24.1563	Sydlo, Cezary	W4G4.1601
Soto-Manriquez, Jose	R5D13.1647	Szabmany, Gergo	M3K3.1618
Spasenovic, Marko	M4K1.1721	Szilagyi, Andrei	R5D4.1462
Spassovsky, Ivan	T2G2.1628, W5D48.1313	Tachiki, Takashi	W4K4.1335
Speck, Andrew	W5D17.1531	Tai, Evgeny M.	T2A1.1468, W4U4.1472
Spektor, Igor E.	M3B4.1743, M5D40.1127, W5D31.1143	Taino, Tohru	M3G4.1681
Spencer, Locke D.	T5D8.1633	Takahashi, H.	T5D28.1432
Spickermann, Gunnar	T2G4.1529	Takahashi, Hiromi	R5D38.1430
Spiegel, Wolff von	M3G1.1513	Takahashi, Hiroyuki	M3A1.1451
Srivastava, Anurag	M5D44.1701, T3A3.1683	Takahashi, K.	T2A5.1359
Stachnik, Robert A	W3A4.1635	Takahashi, Koji	T5D32.1206, R4A1.1695
Stake, Jan	W2K3.1536	Takahashi, Toshiharu	T5D3.1461
Stanko, Stefan	M3A2.1369, W2G3.1208, R4K2.1374	Takayanagi, Jun	T3G4.1300
Stanze, Dennis	T4B5.1322	Takeda, Masanori	R2K3.1566
Staus, Chad	M2K3.1195	Takekawa, S.	R4G4.1196
Steer, Brian	W5D2.1787	Takita, Yasuyuki	R5D38.1430
Stehr, Dominik	T4A4.1648	Tallis, William	M5D41.1641
Steiger, Andreas	F2B4.1735	Tamosiunas, Vincas	M3K2.1600
Stek, Paul C.	R2K4.1757	Tan, Swee-Ching	R5D6.1568
Stemme, Göran	F2G3.1642	Tanaka, Kenji	M5D33.1281, W5D6.1588
Stepanov, Andrey N.	W5D43.1581	Tani, Masahiko	M3B5.1197
Sterner, Mikael	M4A1.1421	Tanner, Alan	W2G2.1694
Stober, Jörg	T2A3.1288	Tao, Hu	R4B2.1691
Stoik, Christopher D	T2K4.1622	Tarassenko, Sergey A.	T3K3.1475
Strait, Jared H	M2K1.1731	Tatematsu, Yoshinori	M2A3.1267, M5D32.1209, M5D33.1281, F2A3.1207
Strasser, Gottfried	W3G1.1725, W3G2.1552	Tatsukawa, Toshiaki	R2B2.1519
Strauss, Dirk	T5D32.1206	Tax, David S	R3A5.1567
Strekalov, Dmitry V.	T5D49.1785	Taylor, Antoinette J	R3B1.1373, R4B2.1691
Stringer, Mark R.	M2G4.1363, M4B2.1458, T3B3.1245, T5D7.1380, W4B2.1702	Tegeder, Petra	M4G2.1420
Striteska, Lucie N	T3K4.1631	Teklis, Paris	M2B4.1397
Stupar, Dusan	W3A3.1553	Temkin, Richard J	T2A4.1545, T5D33.1271, R3A5.1567, R5D38.1430, F2A2.1347
Sugiyama, Hiroki	T5D42.1687	Teppe, Frederic	M5D12.1438, T2G3.1360
Suh, Jin-suck	M3G3.1464, T2B4.1424	Teranaka, Masato	R2B2.1519
Suizu, Koji	T3G4.1300, R5D7.1293	Terashima, Wataru	W3G5.1279
Sumikura, Hisashi	M3B5.1197	Tessmann, Axel	M3A2.1369, R4K2.1374
Summers, Byron F	W2G5.1632	Tessonnier, Jean-Phillipe	R5D6.1568
Sun, Cheng-Guang	R5D25.1689	Thayne, Iain G	W5D32.1675
Sun, Haiyan	W5D30.1232	Theerawisitpong, Sombon	T2G5.1745
Sun, Lin	T5D10.1435	Theuer, Michael	M5D16.1264, W5D15.1236, R2A2.1234, R4G2.1242, R5D44.1333
		Thomas, Bertrand C	W4G3.1437,

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R2K5.1515		Ung, Benjamin S	T5D43.1776
Thorsos, Eric I	M5D3.1665	Unterrainer, Karl	W3G1.1725, W3G2.1552, R4G5.1237, R5D3.1306
Thumm, Manfred	T2A3.1288, T4A2.1535, T4A5.1412, T5D29.1248, W4U5.1521, W5D33.1423, R4A3.1550	Upadhyay, Prashanth C	R4K3.1318
Tiede, David M	M4G5.1742	Urayama, Kenta	T5D42.1687
Tiedje, Henry F	W2K1.1389	Urban, Stepan	T3K4.1631
Tignon, Jerome	W3G4.1709	Usachev, Sergei V.	W4U4.1472
Tissafi, Bouchra	W4A2.1460	Uzawa, Takanori	R2B4.1381
Tiwari, Badri N	M3K3.1618	Uzawa, Yoshinori	R2K3.1566
Tiwari, Rakesh K.	M5D24.1406	Vaicikauskas, Viktoras	M3K2.1600
Toacsan, Mariana I	R5D4.1462, R5D8.1696	Vaks, Vladimir L	M4B3.1560, M5D8.1554, T4B4.1627
Tobias, Benjamin J	W4U2.1634	Valusis, Gintaras	M3K2.1600
Tochitsky, Sergei Ja.	M4G3.1160, W4U3.1161, R5D32.1439	van de Pol, Marc J	W4U2.1634
Toda, Mitsuru	M5D9.1660	van Driel, Henry M	M4K1.1721
Toda, Risaku M	F2G2.1761, T3A2.1764	Vanhille, Kenneth	F2G1.1741
Tokuzawa, Tokihiko	W5D6.1588	Varga, Juraj	T3K4.1631
Tolstov, Yuri S.	W5D31.1143	Vengurlekar, Arvind S	W5D7.1561
Tom, Harry W.K.	W4A5.1224	Venkataramanan, Giri	T3A5.1340
Tomasulo, Stephanie	M5D18.1263	Verma, Anand K	M5D22.1399, T5D24.1442, R5D39.1431
Tonouchi, Masayoshi	T2B3.1230, R4B4.1375	Vernon, Ronald J	W5D9.1771
Torcedo, Jojit C.	W4A5.1224	Vertiy, Alexey	W5D23.1132
Torosyan, Garik	T5D9.1578, W5D15.1236, R4G2.1242	Vickers, Anthony J	W4A4.1494
Torres, J��r��mi	T5D36.1408	Vieweg, Nico	T2K2.1483, W2K4.1302
Torrezan, Antonio C.	T5D33.1271	Vinokurov, Nikolay A	T5D12.1194
Torrioli, Guido	M5D14.1516	Vlasov, Alexander N.	M2A2.1154, T5D16.1775
Toyokawa, Seiko	F2B2.1682	Vodopyanov, Konstantin L	M4K5.1383
Toyota, Yuji	T3B5.1688	Voitsch, Martin	M2K4.1337
Tran, Hien	M5D41.1641	Volkov, Alexander A.	M5D40.1127
Tran-Dang, My-Anh	M2B4.1397	Volkov, Leonid V.	R2G2.1779
Tredicucci, Alessandro	M3B1.1518, M5D14.1516, T2K3.1362	Voltoina, Francesco	T2K3.1362, F2B1.1564
Treizebre, Anthony	M2B2.1457	von Volkmann, Konrad	W5D16.1599
Trischman, James A	W2G5.1632	Voronko, Alexander I.	R2G2.1779
Truchin, Valeriy N	M5D25.1569	Vukusic, Josip	W2K3.1536
Tsarev, Maxim V.	W5D42.1486	Wagner, Dietmar	T2A3.1288
Tsukada, Keiji	T2B3.1230	Wahlen, Alfred	M3A2.1369, W2G3.1208
Tsurumachi, Noriaki	R2A3.1274	Wakatsuki, Atsushi	M4K2.1199, R2K2.1272
Tsvetkov, Alexander I.	W5D11.1189	Waldman, Jerry	T4G3.1704
Tucek, John C.	T3A1.1713	Walker, Gillian C.	R5D40.1450
Tuennermann, Andreas	F2K4.1485	Walker, Trevor J	T2K5.1368
T��nnermann, Andreas	M2K4.1337, T3G5.1241	Wallace, H. Bruce	R4K1.1174
Tych, Katarzyna	M4B2.1458	Wallace, Vincent P	M2B3.1277, M2B4.1397, W2B1.1623
Uchida, Hirohisa	T3G4.1300	Walther, Markus	W4A1.1733
Uchida, Takashi	W4K4.1335	Wang, Danling	M5D3.1665
Uchida, Takeo	F2B2.1682	Wang, Hui	R5D33.1190
Uliz'ko, Vitaliy P	T5D11.1358	Wang, King	M5D6.1351
Ulm, Gerhard	T4A3.1459	Wang, Li-Qiang	R5D25.1689
Unalan, Husnu E	R5D6.1568	Wang, Lu	W4B3.1626
		Wang, Ming-Jye	R2K3.1566
		Wang, Wangxiang	M5D21.1128

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Wang, Xiaorui	M5D23.1537	R5D34.1307	
Wang, Yali	W5D4.1156	Xin, Zheng	M5D13.1492
Wang, Yixiang	M2B3.1277	Xu, Haiyong	M2K5.1259, M3K4.1676, W2K5.1637, R2G3.1191
Wanke, Michael C	T4A1.1752, T4G1.1565	Xu, Weiwei	W5D10.1348
Ward, John S.	M5D49.1768, R2K4.1757, R3G1.1766, R4G1.1754, F2G2.1761	Yab, Yang	T5D30.1290
Watanabe, Minro	R2G5.1249	Yagoubov, Pavel de	R2K1.1522
Watanabe, Yasuo	T2G5.1745	Yahalom, Asher	M5D15.1130
Wei, Jian	W4K1.1673	Yamaguchi, Mariko	M3B5.1197
Wei, Yanyu	M5D21.1128	Yamaguchi, Ryoichi	M3A1.1451
Weikle, Robert M.	M2K5.1259, M3K4.1676, R2G3.1191	Yamashita, Masatsugu	T3G4.1300, R4B4.1375
Weinland, Tristan	R2A2.1234	Yan, Ran	R4A4.1366
Weiss, Dieter	R3B5.1480	Yan, Yang	W5D34.1310, R3K3.1297
Weissgerber, Michael	R5D30.1469	Yan, Yin Chu	T5D23.1185
Wenke, Gerhard	W5D20.1325	Yang, Bin	W3K5.1532
Werner, Lutz	F2B4.1735	Yang, Bingxin	M5D10.1158
Whyte, Colin G	M5D39.1542, W3K3.1370, W5D26.1526	Yang, Chun	M4K3.1580, W2A2.1410, W4K2.1583, R3G4.1422
Wilcke, Jörn	M3A2.1369	Yang, Zhonghai	M5D30.1254
Wild, Wolfgang	M5D48.1656	Yao, Jianquan	T5D37.1538
Wilk, Rafal	M5D11.1321, W2K4.1302, R5D9.1244	Yao, Q. J.	R5D45.1243
Wilke, Ingrid	M5D18.1263	Yasui, Takeshi	M3A5.1298, R2A5.1324
Willaert, Fabrice F	W3B5.1759	Yasuoka, Yoshizumi	W4K4.1335
Winebrenner, Dale P	M5D3.1665	Yea, Kwon-hae	M5D47.1426
Winnerl, Stephan	M5D34.1407	Yee, YeungLak	M5D46.1674
Withayachumnankul, Withawat	W5D1.1470, R5D15.1605	Yeh, Y. S.	R5D26.1395
Withington, Stafford	M5D48.1656, T5D25.1311	Yeung, David Kawai	M2B3.1277
Wohnsiedler, Sabine	M5D16.1264	Yi, Minwoo	T5D38.1493
Wolf, Martin	M4G2.1420, W5D16.1599	Yim, Jong-Hyuk	W4B4.1403
Won, Jong Hyo	M5D44.1701, T3A3.1683	Yin, Xiaoxia	R5D40.1450
Wong, K K	M4B4.1744	Yngvesson, Sigfrid K.	W4K3.1577, R3K5.1586
Wood, Christopher D	M2G4.1363	Yokoyama, Haruki	T5D42.1687
Wood, David	T4K4.1556, W3K4.1571	Yokoyama, Shuko	M3A5.1298, R2A5.1324
Woskov, Paul P	R3A5.1567	Yoo, H.K.	R4G4.1196
Wright, Edward L	T5D34.1211	Yoo, Ocki	T2B4.1424
Wu, Bae-lan	M5D21.1128	Yoshimatsu, Toshihide	M4K2.1199
Wu, Chi-Nan	R5D41.1393	Yoshimura, Yasuo	R5D38.1430
Wu, Dong Ho	M3K5.1148	Young, Alan R	M5D39.1542, W5D26.1526
Wu, Guoguang	R2G3.1191	Yshenko, Borys M	T5D11.1358
Wu, P. H.	R5D45.1243	Yu, Ching-Fang	R5D41.1393
Wu, Peiheng	W5D10.1348	Yu, Hyoungeun	M5D46.1674
Wu, Yicheng	M5D10.1158	Yu, Jiao	W5D41.1774
Wu, Zhenhua	T5D5.1305	Yu, N. E.	M5D46.1674, R4G4.1196
Wu, Ziran	M4A3.1372, W4B3.1626	Yu, Nan	T5D49.1785
Wubie, Wondwossen M	R3A4.1544	Yu, Sheng	M5D31.1703
Wüstefeld, Godehard	T4A3.1459	Yu, Yang Jian	M5D13.1492
Wylde, Richard J	T2K5.1368, W3K5.1532	Yuan, Guangjiang	W5D30.1232
Xin, Hao	M4A3.1372, W4B3.1626	Yuan, Jian Min	T5D10.1435
Xin, Qi	T5D17.1280, W5D14.1404,	Yuan, Xuesong	T5D30.1290, W5D34.1310
		Yuan, Yinghao	M5D45.1454, T5D37.1538
		Yuasa, Tetsuya	R5D14.1338

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Yuryev, Vladimir A	T5D31.1187	Zhu, Min	W5D30.1232
Zabudsky, Vyacheslav V	T5D27.1221	Zhu, Z	M5D20.1706
Zaghloul, Amir I.	M3G5.1585	Zhukavin, Roman	R3G2.1339
Zakharin, Alexey O	M4B1.1136	Zhukova, Elena S	T5D31.1187
Zaknoute, Mohammed	W4K2.1583	Zide, Josh MO	R4B2.1691
Zaks, Benjamin R		Zimdars, David A	T2K1.1602
Zannoni, Ric	W4K3.1577, R3K5.1586	Zimmerman, Jeremy D.	M3K5.1148
Zapevalov, Vladimir E	T2A1.1468, F2A3.1207	Zimmermann, Burkhard	M5D34.1407
Zaslavsky, Vladislav Yu.	M5D37.1551	Zimmermann, Ralph	M3G1.1513, T2G4.1529
Zeitler, Axel	M4B5.1582, M5D42.1576, T3K5.1573, R5D6.1568	Zinovev, Nikolay N	M4B1.1136, M5D25.1569, T5D48.1173
Zelenogorsky, Viktor V.	W5D11.1189	Ziolkowski, Richard W	M4A3.1372
Zeng, Gehong	T4A1.1752	Ziskin, Marvin C.	M2B5.1117
Zengerle, Remigius	R3B2.1525, R4G2.1242	Zmuidzinass, Jonas	W5D2.1651, F2K3.1663
Zent, Aaron P	W3A2.1715	Zohm, Hartmut	T2A3.1288
Zeze, Dagou A	W3K4.1571	Zoita, Catalin N	R5D8.1696
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Zhang, Chi	W5D30.1232		
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Zhang, Hui-bo	T5D17.1280, R5D34.1307		
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Zhang, Jin	T5D25.1311		
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Zhang, Ranxi	R2G4.1474		
Zhang, Shi-Chang	T5D17.1280, W5D14.1404, R5D34.1307		
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Zhang, Tao	W5D30.1232		
Zhang, Tingwei	R5D33.1190		
Zhang, X.-C.	T3B4.1575, T5D19.1610, R2A4.1619		
Zhang, Xiang	R4B1.1732		
Zhang, Xin	R4B2.1691		
Zhang, Yan	R2G4.1474		
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Zhang, Yaxin	W5D37.1309, R3A1.1314, R3K3.1297		
Zhang, Yuanting	M2B3.1277		
Zhao, Guozhong	T5D4.1155, W5D4.1156		
Zhao, Zhen-Yu	W3G4.1709		
Zhen, Li	R2G5.1249		
Zheng, Hong-Xing	W5D25.1686, R5D25.1689		
Zhong, Renbin	W5D34.1310, W5D37.1309, R3A1.1314, R3K3.1297		
Zhong, Y. Y.	R5D45.1243		
Zhou, Lei	W5D10.1348		
Zhou, Yun	R3K4.1233		

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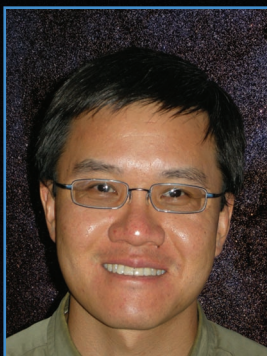
Goutam Chattopadhyay



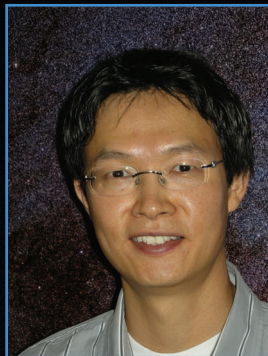
Kenneth Cooper



Robert Dengler



Andy Fung



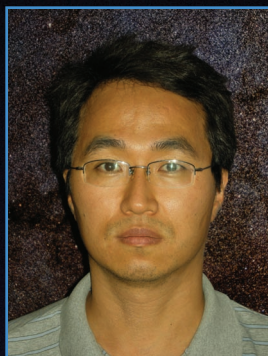
John Gill



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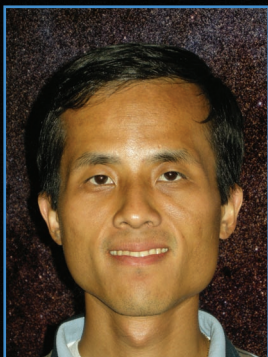
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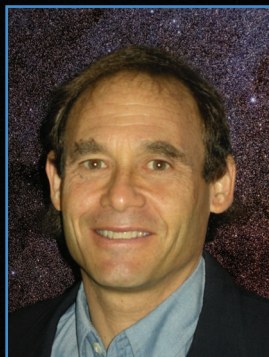
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