## ***Program- 12 May (Day 2)***

* Please note that the program is subject to change.

| | Room I | Room II |
|---|---|---|
| 8:45 - 9:00 | **Opening Remarks** | |
| 9:00 - 10:30 | **Session I-01:** **Plenary and Keynote**<br>**[Chair]** **Satoshi Koizumi** (NIMS, Japan) | |
| | I-01-1 **[Plenary] Time of flight electron beam induced current – a new tool for evaluating carrier mobility in diamond crystals**<br>(45 min) *Julien Pernot1, 2, Fabrice Donatini1, Marie-Laure Gallin-Martel3, Seong Woo Kim4, Koji Koyama4 (1. Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble (France), 2. Institut Universitaire de France (France), 3. Université Grenoble Alpes, CNRS, Grenoble INP, LPSC-IN2P3, Grenoble (France), 4. Orbray Co., Ltd. (Japan)) | |
| | I-01-2 **[Keynote] Presence and future of heteroepitaxial diamond: How to meet the crucial challenges**<br>(45 min) *Matthias Schreck1 (1. University of Augsburg, Institute of Physics (Germany)) | |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **Session I-02:** **Diamond Growth 1**<br>**[Chair]** **Jocelyn Achard (LSPM-CNRS, Université Sorbonne Paris Nord, France)** | **Session II-02:** **Electrochemistry**<br>**[Chair]** **Bohuslav Rezek (Czech Technical University in Prague, Czech Republic)** |
| | I-02-1 **[Invited] Growth of "quantum-grade" single crystal diamond films and their integration into hybrid structures**<br>(30 min) *Alexandre TALLAIRE1, Philippe Goldner1, Jocelyn Achard2 (1. IRCP-CNRS (France), 2. LSPM-CNRS (France)) | II-02-1 **[Invited] Visible Light-Induced Photo-Emitting Diamond Electrode for Green Chemistry Applications**<br>(30 min) *Taro Yoshikawa1, 2, H Asakawa2, T Matsumoto2, K Ichikawa, 2, A Kaga1, M Ohno1, T Mahiko1, M Matsuda1, S Yamasaki2, N Tokuda2 (1. Daicel Corporation(Japan), 2. Kanazawa University(Japan)) |
| | I-02-2 **Controlling Doping in CVD Grown Diamond Epi-layers**<br>(15 min) *Timothy Grotjohn1, 3, F Mime1, SM Asaduzzaman1, M Guven1, M Andleeb1, A Fischer2, F Ponce2, C Cooling3, T Tran3, C Herrera-Rodriguez3, R Diaz3, P Quayle3 (1. Michigan State University (USA), 2. Arizona State University (USA), 3. Great Lakes Crystal Technologies (USA)) | II-02-2 **Boron-doped diamond for electrocatalytic reduction of CO2 via two-electron reduction pathway: First-principles calculation**<br>(15 min) *Chuyan Zhang1, Bin Chen1, Zhaofeng Zhai1,2, Xin Jiang3, Nianjun Yang4, Nan Huang1,2 (1. Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences (China), 2. School of Materials Science and Engineering, University of Science and Technology of China (China), 3. Institute of Materials Engineering, University of Siegen (Germany), 4. Department of Chemistry, Hasselt University (Belgium)) |
| | I-02-3 **Toward a crystal undulator based on boron-doped (110) diamond superlattice**<br>(15 min) David Eon1, Werner Lauth2, Hartmut Backe2, José Baruchel3, Simon Bénichou3, Daniel Dominguez1, Rébecca Dowek3, Pierre Everaere3, Oussama Ibourk3, Lutz Kirste4, Pascal Klag1, Philipp Kompa1, François Perrin3, Benoit Picut3, Yaideny Rodriguez1, Patrik Straňák4, *Thu Nhi Tran-Caliste3 (1. Université Grenoble Alpes, CNRS UPR2940, Institut Néel (France), 2. Institute for Nuclear Physics of Johannes Gutenberg-University (Germany), 3. European Synchrotron Radiation Facility (France), 4. Fraunhofer Institute for Applied Solid State Physics (IAF) (Germany)) | II-02-3 **Maximising Ozone Output from Boron Doped Diamond Electrodes by Tailoring sp2 Carbon Content**<br>(15 min) Joshua Tully1, Irina Terrero Rodriguez1, Manisa Kaewsen1, 2, Georgia Wood1, 2, Daniel Houghton1, 2, Yisong Han3, Tim Mollart4, *M. E. Newton3, Julie Macpherson1 (1. Department of Chemistry, University of Warwick (UK), 2. DST CDT, University of Warwick (UK), 3. Department of Physics, University of Warwick (UK), 4. Element Six (UK) Limited (UK)) |
| | I-02-4 **Advances in Pulsed Phosphorus Doping of Diamond**<br>(15 min) *Franz Koeck1, Robert Nemanich1 (1. Arizona State University, Department of Physics (USA)) | II-02-4 **Electrochemical Impedance and Voltammetric Characterization of Conductive Quenched-produced Diamond Electrodes Deposited by Coaxial Arc Plasma Deposition**<br>(15 min) *Hiroshi Naragino1, 2, Itsuki Misono1, Shunsuke Hokazono1, Satoki Nagano1, Satoshi Takeichi3, Satoshi Koizumi2, Tsuyoshi Yoshitake1 (1. Kyushu University (Japan), 2. National Institute for Materials Science (Japan), 3. National Institute of Technology, Sasebo College (Japan)) |
| | I-02-5 **Development of Diamond Materials for Quantum Technologies**<br>(15 min) *Matthew Markham1, Andrew Edmonds1, Teodoro Graziosi1, Amelia Hall1, Nicola Palmer1, Rajesh Patel1 (1. Element Six (UK)) | II-02-5 **Surface Modification of Conductive Nanodiamond and Its Application to Fuel Cell Catalyst Support**<br>(15 min) *Yuto Ban1, Rena Akiyama1, Yu Sakurada2, Naoya Aoki2, Takeshi Kondo1 (1. Tokyo University of Science (Japan), 2. Ishifuku Metal Industry Co., Ltd. (Japan)) |
| 12:30 - 14:00 | Lunch Break | |
| 14:00 - 15:40 | **Session I-03:** **[Special Session] R&D in Start-Ups**<br>**[Chair]** **Tokuyuki Teraji (NIMS, Japan)** | |
| | I-03-1 **[Invited] Harnessing Carbon for Power Management: Revolutionizing Device Innovation with Diamond Technology**<br>(30 min) *Khaled Driche1 (1. DIAMFAB (France)) | |
| | I-03-2 **Development of Diamond Products at Great Lakes Crystal Technologies**<br>(10 min) *Timothy Grotjohn1, 2 (1. Great Lakes Crystal Technologies (USA), 2. Michigan State University (USA)) | |
| | I-03-3 **HiQuTe Diamond from Research to Industry : Accelerating Diamond for Next-Generation Technological Applications**<br>(10 min) *Riadh Issaoui1, Florent Alzetto1 (1. HiQuTe Diamond (France)) | |
| | I-03-4 **Isotopically engineered diamond material for quantum computing and sensing**<br>(10 min) Simon Schmitt1, Eva Raffalt1, Allegra De Gleria Clark1, Yarden Hagian1, Christoph Findler1, Johannes Lang1, *Christian Osterkamp1 (1. Diatope GmbH (Germany)) | |
| | I-03-5 **Machine learning based electrochemical sensing using BDD electrodes**<br>(10 min) *Shinya Ohmagari1, 2, Ryota Ohtani1, Keitaro Okamoto1, Mitsuru Kitaichi1 (1. ExtenD Co. Ltd. (Japan), 2. AIST (Japan)) | |
| | I-03-6 **[Invited] Beyond the Accident at Fukushima Daiichi Nuclear Power Plant, Toward Social Implementation of Diamond Semiconductors**<br>(30 min) *Junichi H. Kaneko1,3, Hitoshi Umezawa2,3, Naohisa Hoshikawa3 (1. Graduate School of Engineering, Hokkaido University (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Ookuma Diamond Device (Japan)) | |
| 15:50 - 17:50 | **Poster Session 1 and Reception**<br>15:50-16:50 Odd numbered posters / 16:50-17:50 Even numbered posters | |

## ***Program-13 May (Day 3)***

* Please note that the program is subject to change.

| | Room I | Room II |
|---|---|---|
| 9:00 - 10:30 | **Session I-04:** **Keynote 2**<br>**[Chair] Ken Haenen (Hasselt University & IMEC vzw, Belgium)** | |
| | I-04-1 (45 min) **[Keynote] Diamond MOSFETs for Industrial Applications**<br>*Hiroshi Kawarada1, 2 (1. School of Fundamental Science & Engineering Waseda Univ.(Japan), 2. Power Diamond Systems, Inc.(Japan)) | |
| | I-04-2 (45 min) **[Keynote] The future of quantum sensing with diamond**<br>*Brant Gibson1 (1. RMIT University (Australia)) | |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **Session I-05:** **Electronic Devices 1**<br>**[Chair] Julien Pernot (Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble , France)** | **Session II-05:** **Color Centers 1**<br>**[Chair] Shannon Nicley (Michigan State University, USA)** |
| | I-05-1 (30 min) **[Invited] Recent Advances in Diamond Power Devices grown on Heteroepitaxial Diamond**<br>*Okhyun Nam1, Taemyung Kwak1, Geunho Yoo1, Seong-Woo Kim2 (1. Tech University of Korea (Republic of Korea), 2. Orbray Co. (Japan)) | II-05-1 (30 min) **[Invited] Vacancy, nitrogen-vacancy and vacancy cluster production by low energy electron irradiation and annealing in intrinsic and nitrogen doped diamond**<br>*Mark Newton1, Chloe C Newsom1, 2, Ben L Green1, Kai Ross1 (1. Department of Physics, University of Warwick (UK), 2. Université PSL, Chimie ParisTech, Institut de Recherche de Chimie Paris (France)) |
| | I-05-2 (15 min) **750 V High Breakdown Schottky power Diodes on Heteroepitaxial Diamond**<br>*Ali Abdelrahman1, 2, Shinya Ohmagari2, Tsuyoshi Yoshitake1 (1. Department of Advanced Energy Science and Engineering, Kyushu university. (Japan), 2. National Institute of Advanced Industrial Science and Technology (AIST), Tosu, Saga. (Japan)) | II-05-2 (15 min) **Highly Sensitive and Wide-area Evaluation of Quantum Properties for Bulk Diamond Crystals**<br>*Yuta Masuyama1, Chikara Shinei2, Hiroshi Abe1, Takashi Taniguchi3, Tokuyuki Teraji3 (1. National Institutes for Quantum Science and Technology (Japan), 2. University of Tsukuba (Japan), 3. National Institute for Materials Science (Japan)) |
| | I-05-3 (15 min) **Comparative Evaluation of Vertical and Lateral High Voltage Power Schottky Diodes Single Event Burnout Robustness in Diamond and β-Ga2O3**<br>Zhaowen He1, Dongyang Li1, Wei Ji1, *Paul Chow1 (1. Rensselaer Polytechnic Institute (USA)) | II-05-3 (15 min) **Precision focused ion beam etching in diamond to achieve minimal surface damage**<br>*Chloe Newsom1, Joa Morla Al Yahya1, Anatole Bach1, Alexey Tiranov1, Philippe Goldner1, Alexandre Tallaire1 (1. Chimie ParisTech, PSL Research University, CNRS, Institut de Recherche de Chimie Paris (France)) |
| | I-05-4 (15 min) **New device architectures for high-mobility hydrogen-terminated diamond field-effect transistors**<br>*Takahide Yamaguchi1, 2, Koki Hino1, 2, Mohammad Monish1, Yosuke Sasama1 (1. National Institute for Materials Science (Japan), 2. University of Tsukuba (Japan)) | II-05-4 (15 min) **Local Position Control of NV Centers in Diamond by Combining of Picosecond Laser Irradiation and Nitrogen Ion Implantation**<br>*Taisuke Kageura1, Daichi Suzuki1, Ryo Kawaguchi2, Keiichirou Akiba2, Shinobu Onoda2 (1. National Institute of Advanced Industrial Science and Technology (Japan), 2. National Institutes for Quantum Science and Technology (Japan)) |
| | I-05-5 (15 min) **Hole transport through Al2O3 tunnel barrier in diamond MOS diodes**<br>*Makoto Kawano1, Ian Park1, Yoshitaka Taniyasu1, Kazuyuki Hirama1 (1. NTT Basic Research Laboratories, NTT Corporation (Japan)) | II-05-5 (15 min) **Optical technique for atom-scale manipulation of diamond surfaces**<br>M.J. Moshkani,1,2, A. Parveena,1, J.E. Downes1, *R.P. Mildren1 (1. MQ Photonics Research Centre, School of Mathematical and Physical Sciences, Macquarie University (Australia), 2. Quantum Machines Unit, Okinawa Institute of Science and Technology Graduate University (Japan)) |
| 12:30 - 14:00 | **Lunch Break** | |
| 14:00 - 16:00 | **Poster Session 2**<br>14:00-15:00 Even numbered posters / 15:00-16:00 Odd numbered posters | |
| 16:00 - 18:40 | **Session I-06:** **Characterization**<br>**[Chair] Robert Nemanich (Arizona State University, USA)**<br>**Etienne Gheeraert (Univversité Grenoble Alpes, France)** | **Session II-06:** **Bioapplication & Nanocarbon**<br>**[Chair] Brant Gibson (RMIT University, Australia)**<br>**Stoffel Janssens (OIST, Japan)** |
| | I-06-1 (30 min) **[Invited] Graphene - on - Diamond Devices**<br>Aisuluu Aitkuova1, Rina Yamazaki1, Nattakarn Suntornwipat1, Saman Majdi1, *Jan Isberg1 (1. Department of Electrical Engineering, Uppsala University (Sweden)) | II-06-1 (30 min) **[Invited] Nanodiamond quantum thermometry for biological applications**<br>*Masazumi Fujiwara1 (1. Okayama University (Japan)) |
| | I-06-2 (15 min) **Two-Photon Excitation Spectra of Photocarriers with Visible Light in Diamond**<br>*Ikuko Akimoto1, Nobuko Naka2 (1. Wakayama University (Japan), 2. Kyoto University (Japan)) | II-06-2 (15 min) **Dipeptide functionalized nanodiamond for applications in biomedicine and sensing**<br>Elisabeth Mayerhoefer1, Amelie Jerlitschka1, Daniel Mellert1, *Anke Krueger1 (1. University of Stuttgart (Germany)) |
| | I-06-3 (15 min) **Bound-exciton finestructure in boron-doped diamond**<br>Shinya Takahashi1, Yoshiki Kubo1, Kazuki Konishi1, Riadh Issaoui2, Julien Barjon3, *Nobuko Naka1 (1. Kyoto University (Japan), 2. LSPM-CNRS, Universit´e Sorbonne Paris Nord (France), 3. GEMaC, Universit´e de Versailles St-Quentin-en-Yvelines, CNRS, Universit´e Paris-Saclay (France)) | II-06-3 (15 min) **How Multiscale Diamond Coatings Affect Biological Interactions?**<br>*M. C. Hougen1, I. Rios-Mondragon1,2, M. Roxana Cimpan2, P. J. Høl3, J. Zalieckas1 (1. Institute of Physics and Technology, University of Bergen (Norway), 2. Department of Clinical Dentistry, University of Bergen (Norway), 3. Biomatlab, Department of Orthopedic Surgery, Haukeland University Hospital (Norway)) |
| | **Break (15min)** | |
| | I-06-4 (15 min) **Cathodoluminesence Study on Phosphorus-doped (111) Diamond Thin Films Grown by Hot-filament CVD**<br>*Yuki Katamune1, 2, Satoshi Inoshita1, 2, Akira Izumi2, Tokuyuki Teraji1, Kenji Watanabe1, Satoshi Koizumi1 (1. National Institute for Materials Science (Japan), 2. Kyushu Institute of Technology (Japan)) | II-09-1 (30 min) **[Invited] Graphene thin film technology for neural interfaces**<br>*Jose A. Garrido1,2 (1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST (Spain), 2. ICREA (Spain)) |
| | I-06-5 (15 min) **Evaluation of stress variation and Burgers vector of a dislocation in diamond using NV center**<br>*Takeyuki Tsuji1, Shunta Harada2, Tokuyuki Teraji1 (1. National Institute for Material Science (Japan), 2. Nagoya University (Japan)) | |
| | I-06-6 (15 min) **Radiation resistance of diamond for high flux and high fluence**<br>R. Molle1, M-L. Gallin-Martel1, C. Koumeir3, J. Bousquet5, D. Dauvergne1, P. Everaere1,4, L. Gallin-Martel1, A. Guertin2, F. Haddad3, C. Hoarau1, J. Letellier5, J. Livingstone1, V. Metivier2, J-F. Muraz1, F. Poirier3, F. Rarbi1, N. Servagent2, T-N. Tran Caliste4, *P. Bergonzo6 (1. Univ. Grenoble Alpes (France), 2. Univ. Nantes (France), 3. ARRONAX (France), 4. European Synchrotron Radiation Facility (France), 5. DIAMFAB (France), 6. Seki Diamond Systems (USA)) | II-06-5 (15 min) **Nanodiamond@Glass Core-Shell Nanoparticles for Robust Quantum Sensing**<br>*Qiang Sun1, Heike Ebendorff-Heidepriem2, Melissa Mather3, Philip Hemmer4, Harini Hapuarachchi1, Philipp Reineck1, Brant Gibson1, Andrew Greentree1 (1. RMIT University (Australia), 2. The University of Adelaide (Australia), 3. University of Nottingham (UK), 4. Texas A&M University (USA)) |
| | I-06-7 (15 min) **Cascaded Diamond Raman Vortex Laser**<br>*Hui Chen1, 2, Zhihan Zhu3, Yulei Wang1, 2, Zhiwei Lu1, 2, Takashige Omatsu4, Richard P. Mildren5, Zhenxu Bai1, 2 (1. Center for Advanced Laser Technology, Hebei University of Technology, (China), 2. Collaborative Innovation Center for Diamond Laser Technology and Applications (China), 3. Wang Da-Heng Center, Heilongjiang Key Laboratory of Quantum Control, Harbin University of Science and Technology (China), 4. Molecular Chirality Research Center, Chiba University (Australia), 5. MQ Photonics Research Centre, Department of Physics and Astronomy, Macquarie University (Australia)) | II-06-6 (15 min) **Imaging neuronal action potentials by defect charge conversion in diamond**<br>*Daniel McCloskey2, 3, Kathryn Munro1, Nikolai Dontschuk2, 3, Jenny Gunnersen1, David Simpson2, 3 (1. Department of Anatomy and Physiology, The University of Melbourne (Australia), 2. School of Physics, The University of Melbourne (Australia), 3. ARC Centre of Excellence in Quantum Biotechnology, School of Physics, The University of Melbourne (Australia)) |
| | I-06-8 (15 min) **Atomic-scale Visualization of Phonon Behaviors at Different Interfaces of β-Ga2O3/Diamond**<br>*Wen-Tao Huang1, Ying Guo1, Xing Li1, Weiwei Yan1, Tianqi Bai3, Yuehui Li2, LongBin Yan1, Xiaodong Wang1, Jiaojiao Sun1, Shaobo Cheng1,2, Chongxin Shan1 (1. Henan Key Laboratory of Diamond Optoelectronic Materials and Devices, Key Laboratory of Material Physics, Ministry of Education, School of Physics and Laboratory of Zhongyuan Light, Zhengzhou University (China), 2. Institute of Quantum Materials and Physics, Henan Academy of Sciences (China), 3. International Center for Quantum Materials, School of Physics, Peking University (China)) | II-06-7 (15 min) **Ordinary-pressure phase transformation from graphite to diamond**<br>*Xiaojun Hu1, Zhiguang Zhu1, Shaohua Lu1, Chengke Chen1 (1. Zhejiang University of Technology (China)) |
| | I-06-9 (10 min) **Diamondtronics: Diamond Doping and its Role in Electronic Applications**<br>*M.S. Ramachandra Rao1 (1. Department of Physics, Quantum Centre for Diamond and Emergent Materials (QuCenDiEM)-[p-CoE], Nano Functional Materials Technology Center and Materials Science Research Center, India Centre for Lab-grown Diamond (InCent-LGD), Indian Institute of Technology Madras (India)) | II-06-8 (15 min) **Growing Diamond in New Ways**<br>*Rodney S. Ruoff1,2,3,4 (1. Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS) (Republic of Korea), 2. Department of Chemistry, Ulsan National Institute of Science and Technology (UNIST) (Republic of Korea), 3. Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST) (Republic of Korea), 4. School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST) (Republic of Korea)) |
| 18:40 | | |

## ***Program- 14 May (Day 4)***

* Please note that the program is subject to change.

| | Room I | | Room II | |
|---|---|---|---|---|
| 9:00 - 11:00 | **Session I-07:** | **Electronic Devices 2** | **Session II-07:** | **Color Centers 2** |
| | **[Chair]** | **Okhyun Nam (Tech University of Korea, Republic of Korea)** | **[Chair]** | **Mark Newton (University of Warwick, UK)** |
| | I-07-1<br>(30 min) | **[Invited] Diamond CMOS technology**<br>*Meiyong Liao1, Wen Zhao1, Satoshi Koizumi1 (1. National Institute for Materials Science (Japan)) | II-07-1<br>(30 min) | **[Invited] Quantum Materials Engineering in Diamond: Recent Progress on Nickel Vacancies and Other Color Centers**<br>*S.S Nicley1, 2, J.N. Becker2, 3 (1. Michigan State University, Department of Electrical and Computer Engineering(USA), 2. Fraunhofer USA, Center Midwest (CMW)(USA, 3. Michigan State University, Department of Physics and Astronomy (USA)) |
| | I-07-2<br>(15 min) | **Dynamics of incomplete ionized n-dopants and their impact on diamond devices**<br>*Martin KAH1, Nazareno Donato1, Rebecca Watkins2, Calum Henderson2, Jingfan Yang2, Richard Jackman2, Florin Udrea1 (1. Engineering Department, University of Cambridge (UK), 2. UCL (University College London), London Centre for Nanotechnology (LCN) & the Department of Electronic and Electrical Engineering (UK)) | II-07-2<br>(15 min) | **Diamond Photonic Integrated Devices for Quantum Computing and Communication**<br>*Christian Giese1, Patricia Klar1, Sabine Bühler1, Yong Hu1, Dirk Englund2, Quankui Yang1, Rebekka Eberle1, Peter Knittel1, Felix Hoffmann1 (1. Fraunhofer Institute for Applied Solid State Physics (Germany), 2. Massachusetts Institute of Technology (USA)) |
| | I-07-3<br>(15 min) | **Band alignment study of cubic Boron Nitride deposited on diamond via fluorine chemistry**<br>Ali Ebadi Yekta1, Norio Tokuda2, *Robert Nemanich1 (1. Department of physics, Arizona State University (USA), 2. School of Natural Science and Technology, Kanazawa University (Japan)) | II-07-3<br>(15 min) | **Quantum-Grade Nanodiamonds Through Industrial-Scale Single-Step Pressure and Temperature Process**<br>Yahua Bao1, *Michal Gulka2, Parkarsh Kumar3, Jakub Copak2, 4, Priyadharshini Balasubramanian5, Yuliya Mindarava5, Rémi Blinder5, Michael Olney-Fraser5, Haotian Wen3, Hana Spanielova2, Jaroslav Hruby6, 7, Fedor Jelezko5, 8, Daniel Belnap1, Shery Chang3, 9, Petr Cigler2 (1. MegaDiamond Technology Center, SLB Corporation (USA), 2. Institute of Organic Chemistry and Biochemistry of the CAS (Czech Republic), 3. School of Material Science and Engineering, University of New South Wales (Australia), 4. Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University, (Czech Republic), 5. Institute of Quantum Optics, Ulm University (Germany), 6. Institute for Materials Research (IMO), Hasselt University (Belgium), 7. IMOMEC Division, IMEC (Belgium), 8. Integrated Quantum Science and Technology (IQST), Ulm University (Germany), 9. Electron Microscope Unit, Mark Wainwright Analytical Centre, University of New South Wales (Australia)) |
| | I-07-4<br>(15 min) | **Binding energy calibration and interfacial band bending clarification for Al2O3/diamond heterojunction**<br>*Jiangwei Liu1, Tokuyuki Teraji1, Bo Da1, Yasuo Koide1 (1. National Institute for Materials Science (Japan)) | II-07-4<br>(15 min) | **Investigation of Tin Vacancy Centre Formation in CVD Diamond**<br>Rani Mary Joy1, 2, Paulius Pobedinskas1, 2, Jan D'Haen1, 2, Hendrik Jeuris1, 2, Rozita Rouzbahani1, 2, Miloš Nesládek1, 2, *Ken Haenen1, 2 (1. Hasselt University (Belgium), 2. IMEC vzw (Belgium)) |
| | I-07-5<br>(15 min) | **Density distribution analysis of near-interface traps in Al2O3/diamond MOS structure**<br>*Xueqia Zhang1, Xufang Zhang1, Mingkun Li1, Jing Zhang1 (1. School of Integrated Circuits, North China University of Technology (China)) | II-07-5<br>(15 min) | **Single tin-vacancy center in detonation nanodiamond**<br>*Masanori Fujiwara1, Masanao Ohori1, Frederick So1, 2, Yuta Makino3, Naoya Morioka1, 4, Izuru Ohki1, Ryuji Igarashi2, 5, Norikazu Mizuochi1, 4 (1. Institute for Chemical Research, Kyoto University (Japan), 2. Institute for Quantum Life Science, National Institutes for Quantum Science and Technology (Japan), 3. Research and Development Headquarters, Daicel Corporation (Japan), 4. Center for Spintronics Research Network, Kyoto University (Japan), 5. School of Life Science and Technology, Institute of Science Tokyo (Japan)) |
| | I-07-6<br>(15 min) | **Bulk Current Blocking Capability of (001) Vertical Diamond MOSFET with C-O Trench Sidewall**<br>*Ryosuke Yamamoto1, Nobutaka Oi1, 2, Kosuke Ota1, 2, Kento Narita1, Atsushi Hiraiwa1, Momoko Deura1, Tatsuya Fujishima2, Hiroshi Kawarada1, 2, 3 (1. Waseda University (Japan), 2. Power Diamond Systems, Inc. (Japan), 3. The Kagami Memorial Research Institute for Materials Science and Technology (Japan)) | II-07-6<br>(15 min) | **Coherent Control of a Long-Lived Nuclear Memory Spin in a Germanium-Vacancy Multi-Qubit Node**<br>*Katharina Senkalla1, Nick Grimm1, Philipp Vetter1, Jurek Frey2, 3, Prithvi Gundlapalli1, Tommaso Calarco4, 5, 6, Genko Genov1, Matthias Müller2, Fedor Jelezko1 (1. Institute for Quantum Optics, Ulm University (Germany), 2. Peter Grünberg Institute-Quantum Computing Analytics (PGI-12), Forschungszentrum Jülich GmbH (Germany), 3. Theoretical Physics, Saarland University (Germany), 4. Peter Grünberg Institute-Quantum Control (PGI-8), Forschungszentrum Jülich GmbH (Germany), 5. Institute for Theoretical Physics, University of Cologne (Germany), 6. Dipartimento di Fisica e Astronomia, Università di Bologna (Italy)) |
| | I-07-7<br>(15 min) | **Ultra-High-Resolution Thermometer Based on Diamond MEMS**<br>*Wen Zhao1, Tokuyuki Teraji1, Satoshi Koizumi1, Yasuo Koide1, Meiyong Liao1 (1. National Institute for Materials Science (Japan)) | II-07-7<br>(15 min) | **Stabilization of charge state control of nitrogen vacancy centers by diamond MOS device**<br>*Moriyoshi Haruyama1, Hiromitsu Kato1, Yukako Kato1, Masahiko Ogura1, Tosiharu Makino1 (1. National Institute of Advanced Industrial Science and Technology (Japan)) |
| 11:30 - | **Excursion** | | | |
| 18:30 - | **Banquet** | | | |

## *Program- 15 May (Day 5)*

* Please note that the program is subject to change.

| | Room I | Room II |
|---|---|---|
| 9:00 - 10:30 | **Session I-08: Electronic Devices 3**<br>**[Chair] Hitoshi Umezawa (AIST, Japan)** | **Session II-08: Color Centers 3**<br>**[Chair] Christian Osterkamp (Diatope GmbH, Germany)** |
| | I-08-1 (30 min) **[Invited] H-Diamond FETs with High Quality Channel Layer Grown and Fabricated on (001) Single Crystal Diamond Substrate**<br>*Zhihong Feng1, C. Yu1, C. Zhou1, M. Ma1, H. Yu1, J. Guo1, Z. He1 (1. Hebei Semiconductor Research Institute (China)) | II-08-1 (15 min) **Towards Deterministic Atomic Scale Fabrication of Ultra-high Coherence Nitrogen Vacancy Centers in Diamond 111**<br>Hung-Hsiang Yang1, Jz-Yuan Juo1, Yi-Ying Sung1, *David Collomb1, Maximilian Bauernfeind1, Steffen Zelzer1, Philipp Reinke1, James Lu1, Tetiana Sergeiava1, Santiago Corujeira Gallo2, Rebecca Griffin3, Henry Chandler3, Chris Pakes3, Alastair Stacey4, Wolfgang Klesse1, Marcus Doherty2 (1. Quantum Brilliance GmbH (Germany), 2. Quantum Brilliance Pty Ltd (Australia), 3. Graudate Research School, La Trobe University (Australia), 4. School of Science, STEM College, RMIT University (Australia)) |
| | | II-08-2 (15 min) **New broadband optical NV absorption enabling high-contrast magnetometry**<br>*Florian Schall1, Felix Hahl1, Lukas Lindner1, Janina Schindler1, Yves Rottstaedt1, Xavier Vidal2, Tingpeng Luo1, Alexandre Zaitsev3, Takeshi Ohshima4, 5, Jan Jeske1, Rüdiger Quay1 (1. Fraunhofer Institute for Applied Solid State Physics IAF (Germany), 2. TECNALIA Basque Research and Technology Alliance (BRTA) (Spain), 3. College of Staten Island (CUNY) (USA), 4. National Institutes for Quantum Science and Technology (QST) (Japan), 5. Department of Materials Science, Tohoku University (Japan)) |
| | I-08-2 (15 min) **High Frequency (fMAX=74 GHz) Diamond MOSFETs with LG=157 nm**<br>*Niloy Chandra Saha1, Masanori Eguchi2, Yoshiki Muta1, Toshiyuki Oishi1, Makoto Kasu1 (1. Department of Electrical and Electronic Eng., Saga University (Japan), 2. Synchrotron Light Application Center, Saga University (Japan)) | II-08-3 (15 min) **Scanning Photocurrent Imaging of Single NV Center in Diamond**<br>*Shunki Nakamura1, 2, Naoya Morioka3, 4, Norikazu Mizuochi3, 4, Shigemi Mizukami2, 5, Hiroki Morishita2, 5 (1. Tohoku University (Japan), 2. WPI-AIMR (Japan), 3. Kyoto University (Japan), 4. CSRN (Japan), 5. CSIS (Japan)) |
| | I-08-3 (15 min) **Multi-Finger 2DHG Diamond Vertical MOSFETs and its RF characteristics**<br>*Yuki Takano1, Akira Takahashi1, Kosuke Ota1, 2, Yukihiro Chou1, Fuga Asai1, Atsushi Hiraiwa1, Momoko Deura1, Tatsuya Fujishima2, Hiroshi Kawarada1, 2, 3 (1. Waseda University (Japan), 2. Power Diamond Systems, Inc. (Japan), 3. The Kagami Memorial Research Institute for Materials Science and Technology (Japan)) | II-08-4 (15 min) **Tracking trapping, transport and space charges in a defective diamond device**<br>*Alexander Wood1, Daniel McCloskey1, Nik Dontschuk1, Artur Lozovoi2, Russell Goldblatt1, Tom Delord2, David Broadway3, Jean-Philippe Tetienne3, Brett Johnson3, Kaih Mitchell1, Christopher Lew1, Carlos Meriles2, Andy Martin1 (1. University of Melbourne (Australia), 2. CUNY-City College of New York (USA), 3. RMIT University (Australia)) |
| | I-08-4 (15 min) **Depletion-mode and Enhancement-mode Diamond MOSFETs Fabricated on the Same Heteroepitaxial Diamond Substrates**<br>*Taemyung Kwak1, Yoonseok Nam1, Geunho Yoo1, Eonhee Roh1, Seong-woo Kim2, Okhyun Nam1 (1. Tech university of korea (Republic of Korea), 2. Orbray Co. Ltd. (Japan)) | II-08-5 (15 min) **GHz-range AC magnetometry with an ensemble of NV centers in diamond using concatenated continuous dynamical decoupling**<br>*Takuya Kitamura1, Genko Genov1, Hitoshi Sumiya2, Shinobu Onoda3, Junichi Isoya4, Fedor Jelezko1 (1. Institute for Quantum Optics, Ulm University (Germany), 2. Sumitomo Electric Industries Ltd. (Japan), 3. Quantum Materials and Applications Research Center, National Institutes for Quantum Science and Technology (Japan), 4. Faculty of Pure and Applied Sciences, University of Tsukuba (Japan)) |
| | I-08-5 (15 min) **Characteristics and Contact Optimization of Boron-doped Diamond MOSFETs**<br>*Zihui Zhu1, Xinze Xing1, 2, Zeyang Ren1, 2, Jinfeng Zhang1, 2, Kai Su1, Yu Fu1, Yue Hao1, Jincheng Zhang1 (1. State Key Laboratory of Wide-Bandgap Semiconductor Devices and Integrated Technology, Faculty of Integrated Circuit, Xidian University (China), 2. Xidian-Wuhu Research Institute (China)) | II-08-6 (15 min) **Multiplexed Imaging of Temperature and AC Current of a Microcircuit Using RF-dressed States of Electron Spins in Diamond**<br>*Yuma Itabashi1, 2, Fuki Otsubo1, 2, Hibiki Tabuchi1, 2, Takahisa Tanaka1, Yuichiro Matsuzaki3, Norio Tokuda4, Junko Ishi-Hayase1, 2 (1. Graduated School of Science and Technology, Keio University (Japan), 2. Center for Spintronics Research Network, Keio University (Japan), 3. Faculty of Science and Engineering, Chuo University (Japan), 4. Nanomaterials Research Institute, Kanazawa University (Japan)) |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **Session I-09: Diamond Growth 2**<br>**[Chair] Timothy Grotjohn (Michigan State University, USA)** | **Session II-09: Nanocarbon**<br>**[Chair] Anke Krueger (University of Stuttgart, Germany)** |
| | I-09-1 (15 min) **Study of dislocation propagation in (113)-oriented diamond films**<br>Rémi Mesples-Carrère1, Pilar Villar2, Gonzalo Alba2, Riadh Issaoui1, Daniel Araujo2, Ovidiu Brinza1, Fabien Bénédic1, *Jocelyn Achard1 (1. LSPM-CNRS, Université Sorbonne Paris Nord (France), 2. Department of material science and ME and IQ, University of Cádiz (Spain)) | II-09-2 (15 min) **Plasmon-Induced Optical Transparency in Graphene/Ag/Graphene Films**<br>*Ren Kojima1, Shiguma Aoki1, Takeshi Watanabe1, Shinji Koh1 (1. Aoyama Gakuin University (Japan)) |
| | I-09-2 (15 min) **Observation of etch pits formed on cross section of homoepitaxial CVD diamond layer**<br>*Takehiro Shimaoka1, Kaishu Nitta1, Hideaki Yamada1, Nobuteru Tsubouchi1, Yoshiaki Mokuno1, Akiyoshi Chayahara1 (1. AIST (Japan)) | II-09-3 (15 min) **Opto-Electronic Properties of Gold Nanoparticles and Antibodies Self-Assembled on Boron-Doped Carbon Nanowalls**<br>*Bohuslav Rezek1, Jaroslav Kuliček1, Michello Dzelu1, Alexander Kromka2, Michał Sobaszek3, Mirosław Sawczak4, Robert Bogdanowicz3 (1. Faculty of Electrical Engineering, Czech Technical University in Prague (Czech Republic), 2. Institute of Physics, Czech Academy of Sciences (Czech Republic), 3. Gdansk University of Technology (Poland), 4. Institute of Fluid-Flow Machinery, Polish Academy of Sciences (Poland)) |
| | I-09-3 (15 min) **Dislocations and Impurity Uptake in Laser-trenched High Purity Diamond**<br>*Stephen Smith1, Ralph Hall1, Anjana Wijesekara1, Josh Tully2, Mark Newton1, Tim Mollart3, Ben Green1 (1. Department of Physics, University of Warwick (UK), 2. Department of Chemistry, University of Warwick (UK), 3. Element Six (UK) Ltd (UK)) | II-09-4 (15 min) **Synthesis of High Crystallinity Graphene Oxide**<br>*Kazuto Hatakeyama1, Tatsuki Tsugawa2, Takaaki Taniguchi3, Michio Koinuma1, Shintaro Ida1 (1. Institute of Industrial Nanomaterials (IINa), Kumamoto University (Japan), 2. Graduate School of Science and Technology, Kumamoto University (Japan), 3. International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science |
| | I-09-4 (15 min) **Stress in homoepitaxial diamond films grown by hot-filament chemical vapor deposition**<br>*Kimiyoshi Ichikawa1, Kazuki Kobayashi1, Tsubasa Matsumoto1, Kan Hayashi1, Takao Inokuma1, Satoshi Yamasaki1, Norio Tokuda1 (1. Kanazawa University (Japan)) | II-06-4 (15 min) **Photon Neutron Capture Therapy for Cancer with Bimodal Nanosensitizer Consisting of Chlorin e6 and Hexagonal Boron Nitride Nanosheet**<br>*Heongyu Kang1, Giacomo Reina1, Weian Huang1, Jie Yu1, Xiaoxioa Chen1, Masahiro Nishikawa1, Minoru Suzuki1,2, Naoki Komatsu1 (1. Kyoto University (Japan), 2. Particle Radiation Oncology Research Center, Institute for Integrated Radiation and Nuclear Science, Kyoto University (Japan)) |
| | I-09-5 (15 min) **In-situ microscopic observation of single-crystal diamond surface during chemical vapor deposition: Impact of off-axis growth and nitrogen impurities on dynamics of surface microstructure**<br>*Kaishu Nitta1, Takehiro Shimaoka1, Hideaki Yamada1, Nobuteru Tsubouchi1, Akiyoshi Chayahara1, Yoshiaki Mokuno1 (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan)) | II-09-5 (15 min) **Approach for Measuring Diffusion Lengths of Growth Precursors on Diamond**<br>*Stoffel Janssens1, Francisco Forte Neto2, David Vázquez-Cortés1, Fernando Duda2, Eliot Fried1 (1. OIST (Japan), 2. UFRJ (Brazil)) |
| | I-09-6 (15 min) **Introduction of a novel surface wave plasma chemical vapor deposition reactor**<br>*Katharina Hauer1, Swayamprakash Sahoo1, Johannes Fiedler1, Justas Zalieckas1 (1. University of Bergen (Norway)) | |
| 12:30 - 14:00 | **Lunch Break** | |
| 14:00 - 15:30 | **Session I-10: Electronic Devices 4**<br>**[Chair] Norio Tokuda (Kanazawa University, Japan)** | **Session II-10: DLC & Mechanical Properties**<br>**[Chair] Masami Aono (Kagoshima University, Japan)** |
| | I-10-1 (15 min) **Electron beam induced diamond etching**<br>Duc-Duy Tran1, 2, 3, Fabrice Donatini1, Cédric Mannequin3, 4, Marine Regnier1, 2, 3, *Etienne Gheeraert1, 2, 3 (1. Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Neel (France), 2. Institute of Applied Physics, Faculty of Pure and Applied Sciences, University of Tsukuba (Japan), 3. Japanese-French lAboratory for Semiconductor physics and Technology J-FAST, CNRS, Universite Grenoble Alpes, Grenoble INP, University of Tsukuba (Japan), 4. CNRS-Nantes Universite-Institut des Materiaux de Nantes Jean Rouxel (France)) | II-10-1 (30 min) **[Invited] New horizons for tetrahedral amorphous carbon films**<br>*Volker Weihnacht1 (1. Fraunhofer IWS (Germany)) |
| | I-10-2 **Fluorine plasma assisted remediation of single crystal diamond surfaces**<br>*Michael Mathews1, Jonathan Levine-Miles1, Bradford Pate1 (1. U.S. Naval Research Laboratory (USA)) | |
| | I-10-3 (15 min) **Formation of Diamond Trench {111} Flat Sidewalls through Thermochemical Etching by Nickel Films in Water Vapor**<br>*Masatsugu Nagai1, Tsubasa Matsumoto2, Satoshi Yamasaki2, Norio Tokuda2, Moriyoshi Haruyama1, Yukako Kato1, Hironori Yoshioka1, Hitoshi Umezawa1, Hiromitsu Kato1, Masahiko Ogura1, Daisuke Takeuchi1, Yoshiyuki Miyamoto1, Toshiharu Makino1 (1. AIST (Japan), 2. Kanazawa Univ. (Japan)) | II-10-2 (15 min) **Synthesis and Evaluation of Multilayer DLC Films : Mechanical and Tribological Properties**<br>*Daiki Yokota1,2, Noritaka Mori1, Takumi Ishikawa1, Hiroshige Matsuoka1, Yuki Hirata2 (1. Tottori University (Japan), 2. Institute of Science Tokyo (Japan)) |
| | I-10-4 (15 min) **Processing and shaping of large diamonds using a laser microjet technology**<br>*Ovidiu Brinza1, Vianney Mille1, 2, Alexandre Tallaire1, 3, Noël Girodon-Boulande1, Jocelyn Achard1, 2, Fabien Bénédic1, 2 (1. CNRS - LSPM (France), 2. Université Sorbonne Paris Nord, LSPM, CNRS, UPR 3407 (France), 3. Institut de Recherche de Chimie Paris, Chimie ParisTech, CNRS, PSL Research University (France)) | II-10-3 (15 min) **Direct deposition of low-friction and wear-resistant nanodiamond composite (NDC) superhard coatings using eco-friendly PVD-CAPD technique on high-speed steel (HSS) substrates for cutting tools applications: Breakthrough**<br>*Mohamed Diab1,2, Mohamed Egiza2, Koki Murasawa1, Hiroshi Naragino1, Tsuyoshi Yoshitake1 (1. Dept. of Advanced Energy Science and Engineering, Kyushu University (Japan), 2. Dept. of Mechanical Engineering, Kafrelsheikh University (Egypt)) |
| | I-10-5 (15 min) **Ultra-thin CVD Diamond Films Grown at 450℃ on Silicon with Thermal Conductivity of 300 W/mK**<br>*Yonhua Tzeng1, FuCheng Lin1, Stephen Guu1, YuSen Chien1, Alen Jhang1, Jian-Wei Tsai1, Hsiao-Kang (Kevin) CHANG 2, Hsin-Yen Huang2, Shao-Kuan Lee2, Cheng-Chin Lee2, Kuang-Wei YANG 2 (1. National Cheng Kung University (Taiwan), 2. Taiwan Semiconductor Manufacturing Company (Taiwan)) | II-10-4 (15 min) **On the fracture toughness and structural integrity assessment of MPA CVD diamond in nuclear fusion devices**<br>*Gaetano Aiello1, Pablo Estebanez2, Bronislava Gorr1, Andreas Meier1, Theo Scherer1, Sabine Schreck1, Dirk Strauss1, Christoph Wild3, Eckhard Woerner3 (1. Karlsruhe Institute of Technology (KIT) (Germany), 2. Fusion for Energy (F4E) (Spain), 3. Diamond Materials GmbH & Co. KG (Germany)) |
| | I-10-6 (15 min) **High-precision recognition of hand-written digits by graphene/diamond heterojunctions**<br>Haruki Iwane1, Genki Saito2, Syunsuke Muto2, *Kenji Ueda1 (1. Waseda University (Japan), 2. Nagoya University (Japan)) | II-10-5 (15 min) **Plasma Diagnostic and Mechanical Properties of Tetrahedral Amorphous Carbon (ta-C) Thin Films Deposited by Varying Pulse Power and Mixed Discharge Parameters Using High-Power Impulse Magnetron Sputtering**<br>*Fu-Sen Yang1, 2, Yu-Lin Kuo1, Jian-Fu Tang3, Chi-Lung Chang2, 4 (1. Department of Mechanical Engineering, National Taiwan University of Science and Technology (Taiwan), 2. Center for Plasma and Thin Film Technologies, Ming Chi University of Technology (Taiwan), 3. Department of Microelectronics Engineering, National Kaohsiung University of Science and Technology (Taiwan), 4. Department of Materials Engineering, Ming Chi University of Technology (Taiwan)) |
| 15:30 - 16:00 | **Coffee Break** | |
| 16:00 - 17:30 | **Session I-11: Diamond Growth 3**<br>**[Chair] Matthias Schreck (University of Augsburg, Germany)** | |
| | I-11-1 (30 min) **[Invited] World First Free-Standing (111) Heteroepitaxial Diamond without Twin Crystals Grown on Sapphire Substrate**<br>*Seongwoo Kim1, Mariko Suzuki1 (1. Orbray Co., Ltd. (Japan)) | |
| | I-11-2 (15 min) **Preferential growth of one rotational domain in heteroepitaxial diamond on Ir/AlN/Si (111)**<br>*Jürgen Weippert1, Jan Engels1, Jan Kustermann1, Lutz Kirste1, Mario Prescher1, Balasubramanian Sundarapandian1, Mohit Raghuwanshi1, Stefan Müller1, Stefano Leone1, Tobias Fehrenbach2, Markus Ohnemus2, Christoph Wild2, Vadim Lebedev1 (1. Fraunhofer Institute for Applied Solid State Physics IAF (Germany), 2. Diamond Materials GmbH (Germany)) | |
| | I-11-3 (15 min) **Analysis of Growth Stresses in Heteroepitaxial Diamond with Different Substrate Materials**<br>*Changda He1, 2, Raia Masuda1, 2, Ryuji Oshima1, 3, Yutaka Kimura3, Atsuhito Sawabe2, Hideo Aida1 (1. Nagaoka University of Technology (Japan), 2. Aoyama Gakuin University (Japan), 3. DISCO Corporation (Japan)) | |
| | I-11-4 (15 min) **Towards Single-Crystal Device-Grade 100mm Homoepitaxial Diamond Wafers**<br>*John Ciraldo1, Matthias Mühle2 (1. WD Advacned Materials (USA), 2. Fraunhofer USA - Center Midwest (USA)) | |
| | I-11-5 (15 min) **Overcoming Limitations of 2.45 GHz Microwave Plasma for Uniform Diamond Growth over 4-inch Large-Area and Beyond**<br>*Alexandre Fiori1, Tasya Yasser1, Kazuo Tsugawa1, Manabu Ikemoto1 (1. Seki Diamond Systems, Cornes Technologies, Ltd. (Japan)) | |
| 17:30 - 17:45 | **YSA Award Ceremony/ Closing Ceremony** | |