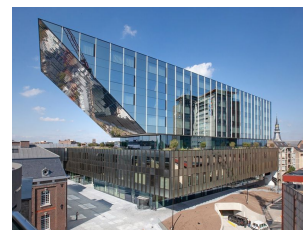




# Hasselt Diamond Workshop 2026

## SBDD XXX



**March 4 - 6, 2026**

**cultuurcentrum Hasselt (Cultural Centre), Hasselt, Belgium**

*During three full days, SBDD XXX will address recent progress in a variety of topics ranging from fundamental material science to applications, focusing on CVD diamond.*

### Tuesday, March 3, 2026

**18:00 – 22:00** Registration and reception at *Café Café*.

### Wednesday, March 4, 2026

**08:20 – 08:50** Registration at the *cultuurcentrum Hasselt*.

**08:50 – 09:00** Opening "*Hasselt Diamond Workshop 2026 – SBDD XXX*".

#### Session 1

##### Field Effect Devices

Chair: **Julien Pernot**, CNRS/Université Grenoble Alpes-Institut Néel, France

**09:00**

1.1 (Invited)

##### Engineering inversion-channel diamond MOSFETs: From Conventional to novel structures

T. Matsumoto<sup>1,2</sup>, Y. Nakamura<sup>2</sup>, K. Sato<sup>2</sup>, K. Kobayashi<sup>1</sup>, K. Ichikawa<sup>1,2</sup>, K. Hayashi<sup>1,2</sup>, M. Nagai<sup>3</sup>, T. Makino<sup>3</sup>, H. Kato<sup>3</sup>, M. Ogura<sup>3</sup>, S. Yamasaki<sup>1</sup>, T. Inokuma<sup>1,2</sup>, D. Takeuchi<sup>3</sup>, N. Tokuda<sup>1,2</sup>

<sup>1</sup>Advanced Research Center for Diamond Science and Technology, Kanazawa University, Kakuma-machi, Kanazawa, Ishikawa, Japan,

<sup>2</sup>Graduate School of Natural Science and Technology, Kanazawa University, Kakuma-machi, Kanazawa, Ishikawa, Japan, <sup>3</sup>Advanced

Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology, 1-1-1 Umezono, Tsukuba, Ibaraki, Japan

**09:30**

1.2

##### Highly conductive interface between single-crystalline $\alpha$ -MoO<sub>3</sub> and hydrogen-terminated diamond

Y. Takahide<sup>1,2</sup>, K. Hino<sup>1,2</sup>, Y. Sasama<sup>1</sup>, M. Monish<sup>1</sup>, J. Kikkawa<sup>1</sup>, W. Amalia<sup>1</sup>, T. Miyazaki<sup>1</sup>

<sup>1</sup>National Institute for Materials Science (NIMS), Tsukuba 305-0044, Japan, <sup>2</sup>University of Tsukuba, Tsukuba 305-8571, Japan

**09:50**

1.3

##### Over 300 mA in a diamond JFET: interdigitated FET structure optimization

D. Michez<sup>1,2</sup>, J. Letellier<sup>1</sup>, R. Makhoul<sup>2</sup>, J. Pernot<sup>3,4</sup>, N. Rouger<sup>2</sup>

<sup>1</sup>DIAMFAB, 38600 Fontaine, France, <sup>2</sup>Université Toulouse, Toulouse INP, CNRS, Laplace, 31000, Toulouse, France, <sup>3</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France, <sup>4</sup>Institut Universitaire de France (IUF), 75231 Paris, France

**10:10** Coffee Break (Grand Banquet Hall)

## Session 2

### Quantum Physics & Application I

Chair: *To be determined*

**10:50**

2.1 (Invited)

#### **Controlling spin-mechanics interactions for spin control and coherence enhancement**

B. Pingault<sup>1</sup>

<sup>1</sup>Argonne National Laboratory & University of Chicago, USA

**11:20**

2.2

#### **Pulsed mechanical readout of a levitated quantum spin system**

A. A. Wood<sup>1</sup>, D. S. Rice<sup>1</sup>, F. H. Cassells<sup>1</sup>, T. Xie<sup>1</sup>, R. M. Goldblatt<sup>1</sup>, T. Delord<sup>2</sup>, G. Hetet<sup>3</sup>, A. M. Martin<sup>1</sup>

<sup>1</sup>School of Physics, University of Melbourne, Parkville, VIC 3010, Australia, <sup>2</sup>Department of Physics, City College of the City University of New York, New York, NY 10031, USA, <sup>3</sup>Laboratoire De Physique de l'Ecole Normale Supérieure, 24 rue Lhomond, 75231 Paris, France

**11:40**

2.3

#### **Nuclear Spin detection in Levitating Diamonds**

V. Julien<sup>1</sup>, C. Louis<sup>1</sup>, G. Hétet<sup>1</sup>, P. Maxime<sup>1</sup>

<sup>1</sup>Laboratoire De Physique de l'Ecole Normale Supérieure, Ecole Normale Supérieure, PSL Research University, CNRS, Sorbonne Université, Université de Paris, 24 rue Lhomond, 75231 Paris Cedex 05, France.

**12:00**

2.4

#### **Non-linear Diamond-Maser Oscillations**

C. W. Zollitsch<sup>1</sup>, C. W. M. Kay<sup>1,3</sup>, J. Breeze<sup>2</sup>

<sup>1</sup>Department of Chemistry, Saarland University, Saarbrücken, Germany, <sup>2</sup>Department of Physics & Astronomy, University College London, London, UK, <sup>3</sup>London Centre for Nanotechnology, University College London, London, UK

**12:20** SBDD XXX group photo (Lecture Hall)

**12:30** Lunch (Grand Banquet Hall)

## Session 3

### CVD Diamond

Chair: *To be determined*

**14:10**

3.1 (Invited)

#### **Optimizing thick CVD diamond synthesis: Effect of growth parameters on growth rate, crystal quality, and point defect incorporation**

U. F.S. D'Haenens-Johansson<sup>1,2</sup>, D. C. Jones<sup>2</sup>, A. Chan<sup>2</sup>

<sup>1</sup>Gemological Institute of America (GIA), 50 W. 47th St., New York, NY 10036, USA, <sup>2</sup>Gemological Institute of America (GIA), Secaucus, NJ 07094, USA

**14:40**

3.2

#### **Generation of axial or shear stress in homo-epitaxial CVD diamond films**

T. Tsuji<sup>1</sup>, T. Teraji<sup>1</sup>

<sup>1</sup>National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan

**15:00**

3.3

#### **Phosphorus doping efficiency considerations for pulsed deposition techniques**

F. A.M. Koeck<sup>1</sup>, R. Nemanich<sup>1</sup>

<sup>1</sup>Department of Physics, Arizona State University, 550 E Tyler Drive, Tempe AZ, USA

15:20

3.4

#### Exciton absorption in electronic grade CVD diamond from photocurrent spectroscopy

R. Vandeboosch<sup>1</sup>, Z. Remes<sup>2</sup>, E. Bourgeois<sup>1,3</sup>, M. Nesladek<sup>1,3</sup>

<sup>1</sup>Institute for Materials research (IMO), Hasselt University, Wetenschapspark 1, Diepenbeek, Belgium, <sup>2</sup>Institute of Physics of the Czech Academy of Sciences, Na Slovance 2, Prague, Czechia, <sup>3</sup>Imomec division IMEC, Wetenschapspark 1, Diepenbeek, Belgium

15:40 Coffee Break (Grand Banquet Hall)

### Session 4

#### Quantum Physics & Application II

Chair: *To be determined*

16:20

4.1 (Invited)

#### Low noise surfaces by hydrogen infusion for next generation NV diamonds

C. Findler<sup>1</sup>, J. Lang<sup>1</sup>, E. Raffalt<sup>1</sup>, A. de Gleria Clark<sup>1</sup>, H. Himani<sup>2</sup>, D. Singh<sup>2</sup>, D. Bucher<sup>2</sup>, C. Osterkamp<sup>1</sup>

<sup>1</sup>Diatope GmbH, Wilhelm-Runge-Straße 10, 89081 Ulm, Germany, <sup>2</sup>Chemistry Department, Technical University of Munich, Lichtenbergstraße 4, 85748 Garching b. München, Germany

16:50

4.2

#### Systematic investigation of optically-induced aging of NV centers for improved quantum sensing

K. Herb<sup>1</sup>, L. A. Völker<sup>1</sup>, L. Bechelli<sup>1</sup>, J. M. Abendroth<sup>1</sup>, C. L. Degen<sup>1</sup>, P. Perrin<sup>1</sup>

<sup>1</sup>Department of Physics, ETH Zürich, Otto-Stern-Weg 1, 8093 Zürich, Switzerland

17:10

4.3

#### Photocatalytic control of shallow diamond color center charge states

M. Li<sup>1</sup>, J. A. Zuber<sup>1,2</sup>, M. Obramenko<sup>1,2</sup>, P. Tognina<sup>1</sup>, A. Corazza<sup>1</sup>, M. Batzer<sup>1</sup>, M. Grimaud Puigibert<sup>1</sup>, J. Happacher<sup>1</sup>, P. Maletinsky<sup>1,2</sup>

<sup>1</sup>Department of physics, University of Basel, Klingelbergstrasse 82, CH-4056, Basel, Switzerland, <sup>2</sup>Swiss Nanoscience Institute, University of Basel, Klingelbergstrasse 82, CH-4056, Basel, Switzerland

17:30

4.4

#### Optical Widefield Nuclear Magnetic Resonance Microscopy

J. C. Dräger<sup>1</sup>, K. D. Briegel<sup>1</sup>, X. Chen<sup>1</sup>, N. R. von Grafenstein<sup>1</sup>, P. Blümner<sup>2</sup>, R. D. Allert<sup>1</sup>, D. B. Bucher<sup>1</sup>

<sup>1</sup>Technical University of Munich, Munich, Germany, <sup>2</sup>University of Mainz, Mainz, Germany

### Session 5

#### Posters I & Reception sponsored by:

Chairs: *To be determined*



17:50 – 20:00 (Grand & Small Banquet Hall)

5.1

#### Real time observation of glass-like carbon formation from SU-8

S. Mandal<sup>1</sup>, S. Astley<sup>2</sup>, J. Stritt<sup>1</sup>, J. A Cuenca<sup>1</sup>, E. L H Thomas<sup>1,3</sup>, D. Andrew Evans<sup>2</sup>, O. A Williams<sup>1</sup>

<sup>1</sup>School of Physics and Astronomy, Cardiff University, Cardiff, UK, <sup>2</sup>Department of Physics, Aberystwyth University, Aberystwyth, UK,

<sup>3</sup>Institute of Micro Production Technology, Leibniz University Hannover, Hannover, Germany

5.2

#### Machine Learning for Diamond Materials Research

T. G.I. van Wijk<sup>1,2</sup>, E. Thomas<sup>1,2</sup>, E. Aylin Melan<sup>1,2,3</sup>, D. E.P. Vanpoucke<sup>1,2</sup>

<sup>1</sup>Institute for Materials Research (IMO), Quantum and Artificial Intelligence design Of Materials (QuATOMs), Hasselt University, Agoralaan Gebouw D, 3590 Diepenbeek, Belgium, <sup>2</sup>IMOMEC, IMEC vzw, Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>3</sup>NISM, University of Namur, Namur, Belgium

5.3

**The carbon vacancy in diamond: new insights into the electronic structure and charge state conversion**

M. Tuan Luu<sup>1</sup>, A. Tayefeh Younesi<sup>1</sup>, Q. Khai Dao<sup>1</sup>, G. Thiering<sup>2</sup>, C. Linderäl<sup>3</sup>, A. Zaitsev<sup>4</sup>, R. Ulbricht<sup>1</sup>

<sup>1</sup>Max-Planck-Institut für Polymerforschung, Ackermannweg 10, 55128 Mainz, Germany, <sup>2</sup>Wigner Research Centre for Physics, Hungarian Academy of Sciences, PO Box 49, Budapest 1525, Hungary, <sup>3</sup>University of Oslo, Department of Physics, Centre for Material Science and Nanotechnology, P.O. Box 1048, Blindern, Oslo N-0316, Norway, <sup>4</sup>College of Staten Island/CUNY, 2800 Victory Blvd., Staten Island, NY 10312, USA

5.4

**Understanding of the Orange Phosphorescence in HPHT synthetic diamonds**

J. Zarupski<sup>1</sup>, M. Bouman<sup>1</sup>

<sup>1</sup>Research Department, HRD Antwerp, Hoveniersstraat 22, Antwerp, Belgium

5.5

**Ultra-thin Diamond Detectors for On-Line Monitoring of Ion Microbeams**

C. Léonhart<sup>1</sup>, M.-L. Gallin-Martel<sup>1</sup>, E. Gheeraert<sup>2</sup>, P. Barberet<sup>3</sup>, F. Vianna-Legros<sup>4</sup>

<sup>1</sup>Univ. Grenoble Alpes, CNRS/IN2P3 Laboratoire de Physique Subatomique et Cosmologie (LPSC), 53 Av. des Martyrs, 38000 Grenoble, France, <sup>2</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 25 Av. des Martyrs, 38000 Grenoble, France, <sup>3</sup>Univ. Bordeaux, CNRS, LP2I, UMR 5797, 33170 Gradignan, France, <sup>4</sup>ASNR, Laboratoire de Microirradiation, Métrologie et Dosimétrie des Neutrons (LMDN), 13108 Saint-Paul-lez-Durance, France

5.6

**Characterisation of a large-area single-crystal diamond microstrip detector for real-time synchrotron x-ray microbeam monitoring**

T. Bettio<sup>1,2</sup>, C. Milewski<sup>1,2</sup>, M. Reynaud<sup>1</sup>, J.-F. Muraz<sup>1</sup>, C. Hall<sup>3</sup>, M.-L. Gallin-Martel<sup>1</sup>, L. Gallin-Martel<sup>1</sup>, F. di Franco<sup>1</sup>, D. Dauvergne<sup>1</sup>, M. Cameron<sup>3</sup>, J.-F. Adam<sup>2</sup>, J. Livingstone<sup>1</sup>

<sup>1</sup>Université Grenoble-Alpes, CNRS, Grenoble INP, LPSC UMR5821, 53 avenue des Martyrs, Grenoble, France., <sup>2</sup>Université Grenoble-Alpes, UGA/INSERM UA7 STROBE, 2280 rue de la Piscine, Saint Martin d'Hères, France., <sup>3</sup>Australian Synchrotron, ANSTO, 800 Blackburn Rd, Clayton, Victoria, Australia.

5.7

**Study of diamond detectors at cryogenic temperatures with an IBIC and IBIL synergy**

G. Provatas<sup>1</sup>, D. Cosic<sup>1</sup>, K. Ivanković Nizić<sup>1</sup>, M. Matijević<sup>1</sup>, L. Basioli<sup>1</sup>, M. Pomorski<sup>2</sup>, M. Jakšić<sup>1</sup>

<sup>1</sup>Division of Experimental Physics, Ruđer Bošković Institute, 10000 Zagreb, Croatia, <sup>2</sup>Université Paris-Saclay, CEA, LIST, F-9112, Palaiseau, France

5.8

**Diamond–YAG:Ce Composite Scintillators as Frontend Screens for Synchrotron X-Ray Beams**

V. Sedov<sup>1</sup>, A. Martyanov<sup>1</sup>, I. Tiazhelov<sup>1</sup>, S. Kuznetsov<sup>1</sup>, V. Konov<sup>1</sup>

<sup>1</sup>Prokhorov General Physics Institute of the Russian Academy of Sciences, 38 Vavilov str., Moscow, Russia

5.9

**Impact of Space Radiation on Diamond Lattice Damage and Sensor Stability**

Y. Beerden<sup>1</sup>, A. Ermakova<sup>1,2</sup>

<sup>1</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, Diepenbeek, Belgium, <sup>2</sup>Belgian Institute for Space Aeronomy (BIRA-IASB), Ringlaan 3, Brussels, Belgium

5.10

**Ultrafast wear of boron-doped diamond electrodes induced by pulsed bipolar activation**

S. Ben Khemis<sup>1</sup>, C. Njel<sup>1</sup>, M. Frégnaux<sup>2</sup>, A. Etcheberry<sup>2</sup>, E. Scorsoni<sup>1</sup>

<sup>1</sup>Université Paris-Saclay, CEA, LIST, F-9112, Palaiseau, France, <sup>2</sup>Institut Lavoisier de Versailles, Université Paris-Saclay, UVSQ, CNRS, UMR 8180, 78035 Versailles Cedex, France

5.11

**Investigation into Optimal Metallisation Schemes to Minimise Contact Resistance on Polycrystalline Boron Doped Diamond for Electrochemical Applications**

G. Pryer-Freeman<sup>1</sup>, J. Tully<sup>1</sup>, D. Field<sup>2</sup>, M. Newton<sup>3</sup>, J. Macpherson<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Warwick, <sup>2</sup>Element six Ltd., <sup>3</sup>Department of Physics, University of Warwick

5.12

**Investigating the Destruction of Short-Chain PFAS via Electrochemical Oxidation with Boron Doped Diamond Electrodes**

J. Tully<sup>1</sup>, M. Amerio-Cox<sup>2</sup>, F. Tang<sup>1</sup>, A. Dettlaff<sup>3</sup>, J. V. Macpherson<sup>1</sup>, T. Sidnell<sup>2</sup>, S. C. Mathias<sup>2</sup>, P. Sears<sup>2</sup>, M. J. Bussemaker<sup>2</sup>, T. Mollart<sup>4</sup>  
<sup>1</sup>Department of Chemistry, University of Warwick, Gibbet Hill Road, CV4 7AL, UK., <sup>2</sup>School of Chemistry and Chemical Engineering, University of Surrey, <sup>3</sup>Faculty of Chemistry, Gdańsk University of Technology, Gdańsk, Poland., <sup>4</sup>Element Six (UK) Limited, Oxford, OX11 0QR, UK

5.13

**Electrochemical Cortisol Immunosensor Signal Enhanced by Nanolayered Oxidized HPHT Nanodiamonds with Citrate Gold Nanoparticles**

S. Ravishankar Maleyur<sup>1</sup>, C. Esmaeili<sup>1</sup>, B. Rezek<sup>1</sup>

<sup>1</sup>Faculty of Electrical Engineering, Czech Technical University in Prague, Technická 2, 16627 Prague, Czechia

5.14

**DFT Simulations of Boron-Doped Diamond-Metal Oxide Heterojunctions: Correlation with Electrochemical PFOS Degradation**

B. Dec<sup>1</sup>, I. Kaczmarzyk-Knitter<sup>1</sup>, R. Bogdanowicz<sup>1</sup>, M. Pierpaoli<sup>1</sup>

<sup>1</sup>Department of Optoelectronics, Gdańsk University of Technology, Narutowicza 11/12, 80-233 Gdańsk, Poland

5.15

**Diamond Surfaces Against Bacteria: Chemistry and Topography**

M. Hougen<sup>1</sup>, I. Rios-Mondragon<sup>1,2</sup>, M. Roxana Cimpan<sup>2</sup>, P. Johan Højl<sup>3</sup>, J. Zalieckas<sup>1</sup>

<sup>1</sup>Institute of Physics and Technology, University of Bergen, Allégaten 55, Bergen, Norway, <sup>2</sup>Department of Clinical Dentistry, University of Bergen, Årstadveien 19, Bergen, Norway, <sup>3</sup>Department of Clinical Medicine, University of Bergen, Biomatlab, Laboratoriebygget, Bergen, Norway

5.16

**Enhancing BDD electrochemical properties by surface patterning with femtosecond laser-induced periodic subwavelength surface structures**

P. Jakóbczyk<sup>1</sup>, M. Mastellone<sup>2</sup>, V. Valentini<sup>2</sup>, A. Bellucci<sup>2</sup>, D. Trucchi<sup>2</sup>, R. Bogdanowicz<sup>1</sup>, M. Pierpaoli<sup>1</sup>

<sup>1</sup>Department of Optoelectronics, Gdańsk University of Technology, 11/12 Narutowicza St., Gdańsk, Poland, <sup>2</sup>Istituto di Struttura della Materia (ISM-CNR), Consiglio Nazionale delle Ricerche, DiaTHEMA Lab, Via Salaria km 29,300, Monterotondo Stazione, Roma, Italy

5.17

**Evaluation of Radiation Hardness of H-Terminated Diamond MOSFETs with Ion Implanted Buried p<sup>+</sup> Electrodes**

S. Uehara<sup>1</sup>, Y. Seki<sup>1,2</sup>, Y. Hoshino<sup>2</sup>, H. Umezawa<sup>3</sup>, J. H. Kaneko<sup>1</sup>

<sup>1</sup>Graduate School of Engineering, Hokkaido University, <sup>2</sup>Department of Physics, Faculty of Science, Kanagawa University, <sup>3</sup>National Institute of Advanced Industrial Science and Technology

5.18

**Investigation of Hole Transport Dynamics in Diamond using Monte Carlo Simulations**

R. Yamazaki<sup>1</sup>, J. Isberg<sup>1</sup>, N. Suntornwipat<sup>1</sup>, S. Majdi<sup>1</sup>

<sup>1</sup>Division of Electricity, Department of Electrical Engineering, Uppsala University, Box 65, 751 03 Uppsala, Sweden

5.19

**Scaling current rating of diamond-based MOSFETs: Interdigitated lateral deep-depletion diamond field-effect transistor**

D. Michez<sup>1,2</sup>, J. Letellier<sup>1</sup>, D. Sardois<sup>1,2</sup>, M. Couret<sup>2</sup>, J. Pernot<sup>3,4</sup>, N. Rouger<sup>2</sup>

<sup>1</sup>DIAMFAB, 5 impasse de Charvet, 38600 Fontaine, France, <sup>2</sup>Université Toulouse, Toulouse INP, CNRS, Laplace, 31000, Toulouse, France, <sup>3</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France, <sup>4</sup>Institut Universitaire de France (IUF), 75231 Paris, France

5.20

**Optimization of time-of-flight electron beam induced current technique: a tool to investigate diamond substrates**

L. Laghezza<sup>1</sup>, F. Donatini<sup>1</sup>, J. Pernot<sup>1,2</sup>

<sup>1</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France, <sup>2</sup>Institut Universitaire de France (IUF), 75231 Paris, France

5.21

**Advanced Electro-Thermal Modelling of Field-Management Structures in Diamond Power Devices**

M. Kah<sup>1</sup>, N. Donato<sup>1</sup>, R. Watkins<sup>2</sup>, C. Henderson<sup>2</sup>, J. Yang<sup>2</sup>, R. Jackman<sup>2</sup>, F. Udrea<sup>1</sup>

<sup>1</sup>Engineering Department, University of Cambridge, Trumpington Street, CB2 1PZ, Cambridge - UK, <sup>2</sup>UCL (University College London), London Centre for Nanotechnology (LCN) & the Department of Electronic and Electrical Engineering, 17-19 Gordon Street, WC1H 0AH, London – UK

5.22

**TCAD Modeling of Radiation Effects in Power Diamond Devices**

A. Michez<sup>1</sup>, C. Marques<sup>1</sup>, D. Michez<sup>2</sup>, J. Letellier<sup>2</sup>

<sup>1</sup>DELPHIA, 34090, Montpellier, France, <sup>2</sup>DIAMFAB, 38600 Fontaine

5.23

**Bipolar Diamond Devices Enabled by High Purity Intrinsic and Doped Diamond**

R. Nemanich<sup>1</sup>, F. A. Koeck<sup>1</sup>, S. Goodnick<sup>1</sup>, T. Thornton<sup>1</sup>

<sup>1</sup>Arizona State University, Tempe, AZ, USA

5.24

**Fully Covered Diamond Schottky Barrier Diode Based on Residual Al Mask**

J. Yang<sup>1</sup>, R. Watkins<sup>1</sup>, C. Henderson<sup>1</sup>, M. Kah<sup>2</sup>, N. Donato<sup>2</sup>, F. Udrea<sup>2</sup>, R. Jackman<sup>1</sup>

<sup>1</sup>UCL (University College London), London Centre for Nanotechnology (LCN) & the Department of Electronic and Electrical Engineering, 17-19 Gordon Street, WC1H 0AH, London - UK, <sup>2</sup>Engineering Department, University of Cambridge, Trumpington Street, CB2 1PZ, Cambridge – UK

5.25

**Proton irradiation effects on diamond FET transistor biosensors with adsorbed cell serum proteins**

B. Rezek<sup>1</sup>, E. Ukraintsev<sup>1</sup>, M. Krátká<sup>2</sup>, A. Artemenko<sup>2</sup>, M. Davidková<sup>3</sup>, A. Kromka<sup>2</sup>

<sup>1</sup>Faculty of Electrical Engineering, Czech Technical University in Prague, Technická 2, 16627 Prague, Czechia, <sup>2</sup>Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, 16200 Prague, Czechia, <sup>3</sup>Nuclear Physics Institute, Czech Academy of Sciences, Řež 130, 25068 Řež, Czechia

5.26

**Lateral diamond MOSFET simulation for a monolithic switching cell**

T. NIAKAN<sup>1</sup>, N. ROUGER<sup>1</sup>

<sup>1</sup>Université de Toulouse, Toulouse INP, CNRS, LAPLACE, Toulouse, France

5.27

**(100) vertical PIN diamond diode with i- & n-type phosphorus doped layers**

F. Sevely<sup>1</sup>, R. Grosset-Darracq<sup>1,2</sup>, K. Isoird<sup>1</sup>, J. Tasselli<sup>1</sup>, M. Bouras<sup>3</sup>, R. Gillet<sup>3</sup>, R. Issaoui<sup>4</sup>, K. Castillo Arvizu<sup>4</sup>, D. Planson<sup>5</sup>, L. Viêt Phung<sup>5</sup>, C. Sonnevile<sup>5</sup>, M.-A. Pinault-Thaury<sup>3</sup>

<sup>1</sup>LAAS-CNRS, Université de Toulouse, CNRS, UPS, Toulouse, France, <sup>2</sup>Univ. Grenoble Alpes, CEA, Leti, Grenoble, France, <sup>3</sup>GEMaC-CNRS, Université Paris-Saclay, Université de Versailles St-Quentin (UVSQ), Versailles, France, <sup>4</sup>LSPM-CNRS, Université Sorbonne Paris Nord, Paris, France, <sup>5</sup>Univ Lyon, INSA Lyon, École Centrale de Lyon, Université Claude Bernard Lyon 1, CNRS, Ampère, Villeurbanne, France

5.28

**Impact of extended defects on diamond Schottky pseudo-vertical diodes performances**

B. Granet<sup>1</sup>, M. Guerrero<sup>1</sup>, C. Perrier<sup>1</sup>, D. Z. Nusimovici<sup>1</sup>, V. Maurya<sup>1</sup>, J. Letellier<sup>1</sup>, J. Bousquet<sup>1</sup>, L. Valera<sup>1</sup>

<sup>1</sup>DIAMFAB, 36000 Fontaine, France

5.29

**Impact of contacts and surface preparation on persistent photocurrent in MSM diamond photodetectors for sensing**

N. Gehl<sup>1,2</sup>, A. J. Biacchi<sup>1</sup>, M. Kelley<sup>3</sup>, B. A. McCullian<sup>1</sup>, E. G. Bittle<sup>1</sup>

<sup>1</sup>Nanoscale Device Characterization Division, National Institute of Standards and Technology, 100 Bureau Dr, Gaithersburg, MD, USA, <sup>2</sup>Enrico Fermi Institute, University of Chicago, 933 East 56th Street, Chicago, IL, USA, <sup>3</sup>Advanced Quantum Technologies Group, MIT Lincoln Laboratory, 244 Wood St, Lexington, MA, USA

5.30

**Studying Mutual Effects of Two Mesa-Structured Diamond Transistors**

D. Eon<sup>1</sup>, V. Dinie<sup>1</sup>

<sup>1</sup>Institut Néel, Univ. Grenoble Alpes, CNRS, 38000 Grenoble, France

5.31

**Electroluminescence investigation of high-power Mo/B-doped diamond pseudo-vertical Schottky diodes reaching 177 kW/cm<sup>2</sup>**

G. Biasin<sup>1,4</sup>, M. Fregolent<sup>1,4</sup>, C. De Santi<sup>1,4</sup>, J. Bassaler<sup>2</sup>, V. Maurya<sup>2</sup>, J. Letellier<sup>2</sup>, G. Meneghesso<sup>1,4</sup>, E. Zanoni<sup>1,4</sup>, G. Verzellesi<sup>3,4</sup>, A. Chini<sup>3,4</sup>, M. Meneghini<sup>1,4</sup>

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5.32

**Diamond composite materials for high-performance flexible aqueous batteries**

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5.33

**Q-optimised nanoelectromechanical diamond resonators**

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**Diamond cloth-supported NiMnOx electrodes for flexible supercapacitors**

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5.35

**Laser-Scripted Graphene-Boron Doped Diamond Nanowall Hybrids: Advanced Field Emitters for Next-Generation Microplasma Devices**

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5.36

**Visible-Light-Responsive Diamond Photocathodes through Multi-Scale Structural Design**

A. Bellucci<sup>1</sup>, C. Maccato<sup>2,3</sup>, D. Barreca<sup>3</sup>, G. Andrea Rizzi<sup>2</sup>, E. Bolli<sup>1</sup>, M. Mastellone<sup>1</sup>, R. Salerno<sup>1</sup>, V. Valentini<sup>1</sup>, D. Maria Trucchi<sup>1</sup>

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**PCD Coating of Diced Si Field Emitters for Enhanced Field Emission Performance**

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5.38

**Nanostructured Silicon–Diamond Cathodes for Photon-Enhanced Thermionic Emission**

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5.39

**Achieving a Large Net ‘Negative Electron Affinity’ on Diamond (100) via Molecular Oxygen and Lithium Functionalisation**

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5.40

**Towards Reliable Quantum Photonics: Controlling Hard Mask Stability and Plasma Etching in Diamond Nanofabrication**

L. Valerius<sup>1,2</sup>, M. E. Stucki<sup>1,2</sup>, T. Pregnotato<sup>1,2</sup>, T. Schröder<sup>1,2</sup>

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**Comparative study of Atomic Layer Etching processes for diamond materials**

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5.42

**High-Resolution Electron Beam Lithography for the Fabrication of Vertical Diamond Power Transistors**

P. Argenton<sup>1</sup>, M. Schott<sup>2</sup>, T. Crozes<sup>2</sup>, B. Fernandez<sup>2</sup>, M. Jacquemin<sup>3</sup>, J. Letellier<sup>3</sup>, N. Rouger<sup>4</sup>, J. Pernot<sup>1,5</sup>

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5.43

**Laser-Induced Graphitization Interior to Bulk Diamond Forming Monolithic Electronic Structures**

T. C. Wade<sup>1,2</sup>, G. T. Hess<sup>1</sup>, D. Kerns<sup>1</sup>, J. L. Davidson<sup>1</sup>, J. Fraley<sup>1</sup>, B. Canfield<sup>3</sup>, T. Moeller<sup>3</sup>, S. May<sup>4</sup>, M. Viste<sup>4</sup>

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5.44

**Planarization Strategies for Tilt Compensation in Diamond Plates for Scalable Quantum Magnetometers.**

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5.45

**Scalable fabrication of microlenses in diamond membranes using grayscale photolithography**

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5.46

**Fabrication methods for quantum photonic nanostructures in diamond**

T. Pregnotato<sup>1,2</sup>, M. E. Stucki<sup>1,2</sup>, L. Valerius<sup>1,2</sup>, D. Bermeo Alvaro<sup>1,2</sup>, T. Schröder<sup>1,2</sup>

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5.47

**Engineering Nanostructured Surfaces for Contact-Mediated Bacterial Inactivation**

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5.48

**Plasma-based polishing of polycrystalline diamond**

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5.49

**Fabrication of Diamond Membranes with Temperature Sensitive Color Centers**

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5.50

**Towards Scalable Platform for Next-Generation Quantum and Photonic Diamond Devices**

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5.51

**Polycrystalline diamond smoothing using grazing incidence reactive plasma etching**

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5.52

**Nanopatterning of diamond by focused ion beam induced graphitization**

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5.53

**Surface Activation of Fluorescent Nanodiamonds Trough Lattice Amination**

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5.54

**Toward Fully Fluorinated Fluorescent Nanodiamonds**

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5.55

**Kinetics of Anionic Ring-Opening Polymerization of Glycidol on Plasma-Oxygenated vs. Acid-Carboxylated Nanodiamond Surfaces**

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**Beta-glucan coated fluorescent nanodiamonds for uptake improvement in yeast cells**

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**Fabrication of Diamond Particles with Ge-V Centers from Nanocrystalline CVD Films**

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**Low-field all-optical detection of superconductivity using NV nanodiamonds**

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5.59

**Roughness suppression in thick polycrystalline diamond films during MPCVD growth**

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5.60

**2.45 GHz Microwave Plasma CVD System: Highly Uniform Large Area Diamond Growth**

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**Delta-Doped Diamond via in-situ Plasma-Distance Control**

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**Toward large area conductive single crystal diamond: linear antenna MW PECVD of boron doped diamond on heteroepitaxy diamond substrates**

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**High-rate growth of heavily B-doped diamond from a liquid precursor of boron in a custom-built chemical vapour deposition system**

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**Understanding threading dislocation reduction through a multiscale study of tungsten incorporation in W-doped diamond layers**

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**Deep defect study in phosphorous-doped (100) diamond SPND**

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**Gas-Plasma Coupling for Uniform diamond growth over 4-in and beyond**

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**Synthesis and Characterization of Ultra-Pure Quantum-Grade Diamond Single Crystals via MPCVD**

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**Impact of surface treatments on stress in nitrogen doped homoepitaxial CVD diamond: Role of surface morphology and roughness**

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**Homoepitaxial Heavily Boron-Doped Diamond with High Crystalline Quality Grown by MPCVD**

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**Optical plasma emission gauges for gas monitoring in CVD diamond reactors**

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**Fabrication of large-area single-crystal diamond wafers via mosaic growth strategy**

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**Magnetized RF Plasma for the Growth of Nanodiamond Particles and Polycrystalline Diamond at Low-Temperature**

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**Quantification and optimization of single crystal CVD diamond growth via Ni-assisted etch pit evolution kinetics**

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**Low-temperature CVD growth of nanocrystalline diamond on  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrates**

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**High-density negatively charged silicon-vacancy centers in monocrystalline diamond via controlled PE-CVD growth**

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**Effect of in situ tungsten doping on diamond epitaxial growth modes and threading dislocation density**

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**Studying Nanodiamond Deposition on Silicon Substrates with Trenches**

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**Numerical simulation of etch pit closure during CVD diamond growth**

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**Development and testing of 3D surface wave plasma chemical vapor deposition reactor**

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**Gentle Growth of high-quality (111) Diamond in a Laser-Assisted NIRIM CVD Reactor**

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**Study on initial process of (001) heteroepitaxy diamond growth on (11-20) sapphire substrate with misorientation**

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**Modelling of a 3D surface wave plasma chemical vapor deposition reactor**

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**Control of PCD formation on SCD during high-pressure MPCVD**

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**Lattice location of implanted 6He in diamond**

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**Diamond layer transfer: impact of hydrogen implantation**

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**P ion implantation for diamonds over a graphitization limit by hot ion implantation technique**

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**Theoretical investigation of helium related defects in diamond**

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**High-Efficiency Detection of Low-Energy Nitrogen Ions in Diamond**

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**SRIM calculations of ion implantation in diamond for membrane fabrication**

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**GeV Centers in Boron and Phosphorus Doped Diamond: Structural Formation Versus Optical Activation**

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**From Strain to Zero-Phonon Line Shifts: The Case of the Germanium-Vacancy**

E. Aylin Melan<sup>1,2,3</sup>, T. G. I. van Wijk<sup>1,2</sup>, L. Henrard<sup>3</sup>, D. E. P. Vanpoucke<sup>1,2</sup>

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**AC magnetometry in the strong drive regime with NV centers in diamond**

K. Everaert<sup>1,2</sup>, S. Satyajit<sup>1,2</sup>, J. Tang<sup>1,2</sup>, Z. Yin<sup>1,3</sup>, X. Zheng<sup>1,3</sup>, J. Tzern Oon<sup>1,2</sup>, C. A. Hart<sup>1,3</sup>, J. W. Blanchard<sup>1,3</sup>, R. L. Walsworth<sup>1,2,3</sup>

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**Optimal Control for Quantum Sensing with NV Centers in Diamond**

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**Sensing Electric Currents in an a-IGZO TFT-Based Circuit Using a Quantum Diamond Microscope**

P. Dubey<sup>1</sup>, M. Yousuf Ali Khan<sup>2</sup>, L. Madhuri P<sup>3</sup>, A. Kumar Tripathi<sup>3</sup>, P. Kumar Peddibhotla<sup>1</sup>, P. Ganga Bahubalindruni<sup>2</sup>

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**Quantum simulation of Time Crystal phase with nuclear spin layers in diamond**

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**Experimental Comparison of Filter Integration Strategies for NV Center Photoluminescence Detection in ODMR Measurements**

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**Ab-initio theory of orbitally coupled spin Hamiltonians for Jahn-Teller active quantum defects in diamond**

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**Solid-state NVC nuclear spin gyroscope**

P. Gregoire<sup>1</sup>, L. Evanno<sup>1</sup>, M. Klausmann<sup>2</sup>, M. Kunzer<sup>2</sup>, J.-F. Roch<sup>1</sup>

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**Analyzing the Impact of Chemical Environments on Spin Defects in Diamond through automatized Screening**

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**Maximizing the Fluorescence Collection of fiber-based NV Sensors**

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**FRET between NV centers in diamond and chlorophyll molecules: a novel resource for multimodal sensing and imaging in plant cells**

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**In-situ Detection of Free Radicals using Nitrogen Vacancy (NV) Center-based T1 Relaxometry**

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**Exe.py: Ab initio fine structure parameters for trigonal defect qubits within the E⊗e Jahn-Teller case**

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**NV candle: Quantitative CW microwave magnetometry via Rabi resonance in diamond quantum sensors**

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**Statistical k-space Photoluminescence Analysis of NV Centers in Diamond Nanopillars with Varying Diameters**

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**High fidelity single-qubit quantum state tomography of electron-14N nuclear hybrid spin register in diamond using Rabi oscillations**

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**Room temperature bolometric detection of NV centers**

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**Saturable absorption and Kerr anisotropy in NV-doped diamond probed by femtosecond Z-scan**

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**Orientation Enhancement of NV Centers in Diamond by Microwave Annealing**

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**Charge state manipulation of NV color centers in phosphorus-doped diamond Schottky diodes**

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**Imaging of microwave magnetic field orientation using continuous-wave experiments on nitrogen-vacancy centers in diamond**

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**Generating and processing ensembles of nitrogen-vacancy centers in diamond for improved quantum sensing**

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**Multi-NV Diamond Quantum Chip for Scalable Room-Temperature Quantum Technologies**

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**A compact architecture of a radiofrequency spectrum analyser based on an ensemble of nitrogen-vacancy centers in diamond**

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**Optical, electrical, and spin metrology for diamond PDMR sensors**

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**Building spin-based quantum register on coupled NV-centres in diamond: 3-qubit control**

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**Deterministic laser fabrication of NV- centres in delta doped diamond**

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**Frequency resolved UV photoluminescence of NV rich single crystal diamond**

Z. Remes<sup>1,2</sup>, J. Soucek<sup>2,3</sup>, M. Nesladek<sup>3,4</sup>

<sup>1</sup>FZU - Institute of Physics of the Czech Academy of Sciences, Na Slovance 1999/2, Prague, Czechia, <sup>2</sup>Czech Technical University in Prague, Faculty of Biomedical Engineering, nám. Sítná 3105, 272 01 Kladno, Czechia, <sup>3</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590 Diepenbeek, Belgium, <sup>4</sup>IMOMECE division, IMEC, Wetenschapspark 1, B-3590 Diepenbeek, Belgium

5.119

**Element-specific determination of new PbV colour centre in diamond using radiotracer photoluminescence spectroscopy**

K. Danilov<sup>1</sup>, B. Biesmans<sup>1</sup>, A. Lamelas<sup>2</sup>, U. Wahl<sup>3</sup>, J. G. Correia<sup>3</sup>, A. Seliverstov<sup>1</sup>, A. R.G. Costa<sup>1</sup>, S. M. Tunhumu<sup>1</sup>, G. Santos<sup>3</sup>, K. Johnston<sup>4</sup>, V. Amaral<sup>2</sup>, A. Vantomme<sup>1</sup>, L. M.C. Pereira<sup>1</sup>

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5.120

**Quantum Sensing of Intracellular Free Radicals: Towards Cancer Diagnostics**

D. Rassler<sup>1</sup>, C. van Klinken<sup>1</sup>, M. Volkova<sup>1</sup>, R. Schirhagl<sup>1</sup>

<sup>1</sup>*Biomaterials & Biomedical Technology, University of Groningen, University Medical Center Groningen, A. Deusinglaan 1, Groningen 9713 AV, The Netherlands*

5.121

**Local nanoscale probing of electron spins using NV centers in diamond**

S. Trofimov<sup>1</sup>, C. Thessalonikios<sup>1</sup>, V. Deinhardt<sup>2,3</sup>, A. Spyranitis<sup>2</sup>, L. Tsunaki<sup>1</sup>, K. Volkova<sup>1</sup>, K. Höflich<sup>2</sup>, B. Naydenov<sup>1</sup>

<sup>1</sup>*Berlin Joint EPR Laboratory and Department Spins in Energy Conversion and Quantum Information Science (ASPIN), Helmholtz-Zentrum Berlin für Materialien und Energie, Hahn-Meitner-Platz 1, 14109 Berlin, Germany,* <sup>2</sup>*Leibniz-Institut für Höchstfrequenztechnik, Ferdinand-Braun-Institut (FBH), Gustav-Kirchhoff-Str. 4, 12489 Berlin, Germany,* <sup>3</sup>*Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Max-Born-Straße 2A, 12489 Berlin, Germany*

5.122

**Diamond-Based Platforms for Biochemical Measurements of Clock Cell Signalling**

R. Ghasemtabesh<sup>1</sup>, D. Merker<sup>1</sup>, J. W. Bröckel<sup>2</sup>, D. Bais<sup>3</sup>, D. Bertinetti<sup>2</sup>, S. Neupert<sup>3</sup>, F. W. Herberg<sup>2</sup>, C. Popov<sup>1</sup>

<sup>1</sup>*Institute of Nanostructure Technology and Analytic (INA), Diamond Quantum Nanotechnology, University of Kassel,* <sup>2</sup>*Department of Biochemistry, University of Kassel,* <sup>3</sup>*Department of Animal Physiology, University of Kassel*

5.123

**Functionalized Diamond thin Films for Quantum Technology Components**

A. de Gleria Clark<sup>1</sup>, S. Schmitt<sup>1</sup>, J. Lang<sup>1</sup>, C. Findler<sup>1</sup>, C. Osterkamp<sup>1</sup>, P. Späth<sup>1</sup>

<sup>1</sup>*Diatope GmbH, Wilhelm-Runge-Straße 10, Ulm, Germany*

5.124

**Diamond Based Quantum Thermal Biosensing of Magnetotactic Bacteria for Magnetic Hyperthermia**

P. Arostegui Barrio<sup>1,2</sup>, M. Espinosa Edo<sup>2,3</sup>, C. Mahi<sup>2</sup>, M. Luisa Fdez-Gubieda<sup>4</sup>, A. Abad Diaz de Cerio<sup>5</sup>, X. Vidal<sup>2</sup>

<sup>1</sup>*Department of Computing, Electronics and Communication Technologies, Faculty of Engineering, University of Deusto, 48007, Bilbao, Spain,* <sup>2</sup>*TECNALIA, Basque Research and Technology Alliance (BRTA), Derio, 48160, Spain,* <sup>3</sup>*Department of Physical Chemistry, University of the Basque Country UPV/EHU, 48940 Leioa, Spain,* <sup>4</sup>*Department of Electricity and Electronic, Faculty of Science and Technology, University of Basque Country UPV/EHU, 48940 Leioa, Spain,* <sup>5</sup>*Department of Immunology, Microbiology and Parasitology, Faculty of Science and Technology, University of Basque Country UPV/EHU, 48940 Leioa, Spain*

5.125

**A New Cryo-DAC Platform for magnetic studies at High-Pressure and Low-Temperature**

G. Le Caruyer<sup>1</sup>, K. On Ho<sup>1</sup>, C. Schäfermeier<sup>4</sup>, K. Karrai<sup>4</sup>, B. Vindolet<sup>1</sup>, L. Toraille<sup>2,3</sup>, F. Occelli<sup>2,3</sup>, M. Schmidt<sup>1</sup>, M.-P. Adam<sup>1</sup>, P. Loubeyre<sup>2,3</sup>, J.-F. Roch<sup>1</sup>

<sup>1</sup>*LuMIn, Université Paris-Saclay, CNRS, ENS Paris-Saclay, CentraleSupélec, 91190 Gif-sur-Yvette, France,* <sup>2</sup>*CEA, DAM, DIF, 91297 Arpajon, France,* <sup>3</sup>*Université Paris-Saclay, CEA, Laboratoire Matière en Conditions Extrêmes, 91680 Bruyères-le-Châtel, France,* <sup>4</sup>*Attocube Systems AG, Eglfinger Weg 2, 85540 Haar, Germany*

5.126

**Vibrational sum-frequency generation spectroscopy for probing diamond surfaces**

Q. Khai Dao<sup>1</sup>, R. Ulbricht<sup>1</sup>

<sup>1</sup>*Molecular Spectroscopy Department, Max Planck Institute for Polymer Research, Ackermannweg 10, 55128*

5.127

**Widefield Quantum Magnetic Imaging of Magnetic Microstructures with Biomedical Applications**

M. Espinosa Edo<sup>1,2</sup>, C. Mahi<sup>1</sup>, C. Redondo<sup>2</sup>, D. Domenech<sup>3</sup>, P. Arostegui<sup>1,4</sup>, M. Dolores Boyano<sup>5</sup>, R. Morales<sup>2,3,6</sup>, X. Vidal<sup>1</sup>

<sup>1</sup>*TECNALIA, Basque Research and Technology Alliance (BRTA), Derio, 48160, Spain,* <sup>2</sup>*Department of Physical Chemistry, University of the Basque Country UPV/EHU, 48940 Leioa, Spain,* <sup>3</sup>*BCMaterials, Basque Center for Materials, Applications and Nanostructures, Barrio Sarriena S/N, 48940, Leioa, Spain,* <sup>4</sup>*Department of Computing, Electronics and Communication Technologies, Faculty of Engineering, University of Deusto, 48007, Bilbao, Spain,* <sup>5</sup>*Department of Cell Biology and Histology, University of the Basque Country (UPV/EHU), 48940 Leioa, Spain,* <sup>6</sup>*Basque Foundation of Science, IKERBASQUE, 48009, Bilbao, Spain*

5.128

**Resonant Grating Waveguide for Quantum Magnetometry Industrial Applications**

M. Lafontaine<sup>1,2</sup>, D. Lepage<sup>1,2</sup>, Y.-C. Nonguierma<sup>1,2</sup>, D. Drouin<sup>1,2</sup>

<sup>1</sup>Université de Sherbrooke, 2500, Boul. De l'Université, Sherbrooke, Qc J1K0A5, Canada, <sup>2</sup>Laboratoire Nanotechnologies Nanosystemes (LN2) - CNRS IRL - 3463, Institut Interdisciplinaire d'innovation Technologique, Université de Sherbrooke, 3000, Boul. De l'Université, Sherbrooke, Qc J1K0A5, Canada

5.129

**High-sensitivity diamond nanostructures for compact and low-power NV magnetometers**

Y. Christian Nonguierma<sup>1,2,3</sup>, A. Guilbault<sup>1,2,3</sup>, D. Lepage<sup>1,2,3</sup>, D. Drouin<sup>1,2,3</sup>

<sup>1</sup>Institut Interdisciplinaire d'Innovation Technologique (3IT), Université de Sherbrooke, Sherbrooke, QC Canada, J1K 0A5, Institut interdisciplinaire d'innovation technologique, Université de Sherbrooke, 2500 Université Blvd, Sherbrooke, Canada, <sup>2</sup>Laboratoire Nanotechnologies Nanosystèmes (LN2) – CNRS 3463, Université de Sherbrooke, Sherbrooke, QC Canada, J1K 0A5, <sup>3</sup>Institut quantique (IQ), Université de Sherbrooke, Sherbrooke, QC Canada, J1K 2R1

5.130

**Vehicle test of battery monitoring using diamond quantum sensors**

Y. Hatano<sup>1</sup>, A. Nakazono<sup>1</sup>, J. Tanigawa<sup>2</sup>, K. Kajiyama<sup>1</sup>, M. Haruyama<sup>3</sup>, H. Kato<sup>3</sup>, M. Ogura<sup>3</sup>, T. Makino<sup>3</sup>, H. Noguchi<sup>4</sup>, T. Sekiguchi<sup>1</sup>, H. Abe<sup>5</sup>, S. Onoda<sup>5</sup>, T. Ohshima<sup>5</sup>, N. Sekiguchi<sup>1</sup>, T. Iwasaki<sup>1</sup>, M. Hatano<sup>1</sup>

<sup>1</sup>Science Tokyo, Meguro-ku, Tokyo 152-8552, Japan, <sup>2</sup>YAZAKI Co., Susono, Shizuoka 410-1194, Japan, <sup>3</sup>National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki 305-8568, Japan, <sup>4</sup>Shin-Etsu Chemical Co., Ltd., Gunma 379-0224, Japan,

<sup>5</sup>National Institutes for Quantum Science and Technology (QST), Takasaki, Gunma 370-1292, Japan

5.131

**Broadband AC magnetic field sensing based on a CW scheme under strong perpendicular magnetic fields**

R. Okaniwa<sup>1,2</sup>, Y. Matsuzaki<sup>3</sup>, R. Suzuki<sup>1,2</sup>, N. Tokuda<sup>4</sup>, J. Ishi-Hayase<sup>1,2</sup>

<sup>1</sup>School of Fundamental Science and Technology, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, 223-8522, Japan, <sup>2</sup>Center for Spintronics Research Network, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama 223-8522, Japan, <sup>3</sup>Department of Electrical, Electronic, and Communication Engineering, Faculty of Science and Engineering, Chuo University, 1-13-27, Kasuga, Bunkyo-ku, Tokyo 112-8551, Japan, <sup>4</sup>Advanced Research Center for Diamond Science and Technology (ARCDia), Kanazawa University, Kanazawa 920-1192, Japan

5.132

**Vector Biomagnetic Field Sensing Using Ion-Implanted NV Centers in Diamond**

C. Mahi<sup>1</sup>, M. Espinosa<sup>1,2</sup>, P. Arostegui<sup>1,3</sup>, A. Goirigolzarri<sup>1,4</sup>, M. Quintana<sup>1</sup>, X. Vidal<sup>1</sup>

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5.133

**Nitrogen-vacancy-center-based characterization of ferromagnetic resonance in magnetoelastic thin films**

M. Jaafar Sharafeddine<sup>1</sup>, V. Mille<sup>2</sup>, N. Ezzahni<sup>1</sup>, A. Talbi<sup>1</sup>, O. Bou Matar<sup>1</sup>, M. Boutghatin<sup>1</sup>, J. Achard<sup>2</sup>, O. Brinza<sup>2</sup>, A. Mazzamurro<sup>1</sup>, N. Tiercelin<sup>1</sup>, O. Marbough<sup>1</sup>, A. Tallaie<sup>3</sup>, Y. Dusch<sup>1</sup>

<sup>1</sup>Univ. Lille, CNRS, Centrale Lille, Univ. Polytechnique Hauts-de-France, UMR 8520-IEMN, F-59000, Lille, France, <sup>2</sup>Laboratoire des Sciences des Procédés et des Matériaux (LSPM–CNRS), Université Sorbonne Paris Nord, UPR 3407, Villetaneuse F-93430, France, <sup>3</sup>CNRS, Institut de Recherche de Chimie Paris, Chimie ParisTech, PSL University, 75005 Paris, France

5.134

**Transimpedance Amplifier for PDMMR-Based NV Magnetometer**

P. Hengel<sup>1</sup>, M. Kern<sup>1</sup>, D. Djekic<sup>1</sup>, E. Bourgeois<sup>2,3</sup>, J. Anders<sup>1,4,5</sup>, M. Nesladek<sup>2,3,6</sup>, R. Tavakoli Dinani<sup>2,3</sup>

<sup>1</sup>Institute of Smart Sensors, University of Stuttgart, Pfaffenwaldring 47, 70569 Stuttgart, Germany, <sup>2</sup>IMEC, Kapeldreef 75, 3001 Leuven, Belgium, <sup>3</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590 Diepenbeek, Belgium, <sup>4</sup>Institute for Microelectronics Stuttgart, Allmandring 30a, 70569 Stuttgart, Germany, <sup>5</sup>Center for Integrated Quantum Science and Technology (IQST), Stuttgart, Germany, <sup>6</sup>FBMI, Czech Technical University, S'itn'a 3105, 272 01 Kladno 1, Czechia

5.135

**Towards Adaptive Characterization of Nuclear Spin Ensembles in Silicon Carbide via Signal-to-Image AI Model**

B. Varona-Uriarte<sup>1,2,3</sup>, V. Vorobyov<sup>4</sup>, J. Wrachtrup<sup>4,5</sup>, E. Garrote<sup>1</sup>, J. Casanova<sup>2,3</sup>

<sup>1</sup>TECNALIA, Bizkaia Science and Technology Park, Astondo Bidea, Edificio 700, 48160 Derio, Spain, <sup>2</sup>Department of Physical Chemistry, UPV/EHU, Apartado 644, 48080 Bilbao, Spain, <sup>3</sup>EHU Quantum Center, University of the Basque Country UPV/EHU, Leioa, Spain, <sup>4</sup>3rd Institute of Physics, University of Stuttgart, Stuttgart, 70569, Germany, <sup>5</sup>Max Planck Institute for Solid State Research, Stuttgart, 70569, Germany

5.136

**Straining Group-IV Vacancy Color Centers in Diamond: A DFT study of the ZPL position and shift**

T. G.I. van Wijk<sup>1,3</sup>, E. Aylin Melan<sup>1,3,4</sup>, R. May Joj<sup>2,3</sup>, E. Y. Guillaume<sup>1,3</sup>, P. Pobedinskas<sup>2,3</sup>, K. Haenen<sup>2,3</sup>, D. E.P. Vanpoucke<sup>1,3</sup>

<sup>1</sup>Materials Chemistry—QuATOMs group, Hasselt University, Hasselt, Belgium, <sup>2</sup>Materials Physics—WBGm group, Hasselt University, Hasselt, Belgium, <sup>3</sup>imec, imo-imomec, Diepenbeek, Belgium, <sup>4</sup>NISM, University of Namur, Namur, Belgium

5.137

**Group-IV color centers in diamond: interaction with static electric fields**

A. Lamelas<sup>1</sup>, G. Thiering<sup>2</sup>, U. Wahl<sup>3</sup>, V. S. Amaral<sup>1</sup>, Á. Gali<sup>2,4,5</sup>

<sup>1</sup>CICECO - Institute of Materials, Universidade de Aveiro, Campus Universitário de Santiago, Aveiro, Portugal, <sup>2</sup>Wigner Research Centre for Physics, Konkoly-Thege Miklós út 29-33, Budapest, Hungary, <sup>3</sup>Centro de Ciências e Tecnologias Nucleares (C2TN), Departamento de Engenharia e Ciências Nucleares (DECN), Instituto Superior Técnico, Universidade de Lisboa, 2695-066 Bobadela LRS, Lisboa Portugal, <sup>4</sup>Department of Atomic Physics, Budapest University of Technology and Economics, Műegyetem rkp. 3, Budapest, Hungary, <sup>5</sup>MTA-WFK Lendület "Momentum" Semiconductor Nanostructures Research Group, Budapest, Hungary

5.138

**Influence of Surface Chemistry on the Optical Properties of IV Group Color Centers in Diamond**

E. Missale<sup>1</sup>, E. Scattolo<sup>1</sup>, A. Cian<sup>1</sup>, E. Nieto Hernández<sup>1</sup>, A. Pegoretti<sup>1</sup>, G. Speranza<sup>1</sup>, D. Giubertoni<sup>1</sup>, R. Dell'Anna<sup>1</sup>

<sup>1</sup>Fondazione Bruno Kessler, via Sommarive 18, 38123 Trento, Italy

5.139

**Broadband Pump Probe Spectroscopy of SiV Centres Reveals Unique Spectroscopic Features**

T. Khan<sup>1</sup>, I. Bydžovská<sup>1</sup>, O. Babčenko<sup>1</sup>, Š. Potocký<sup>1</sup>, A. Kromka<sup>1</sup>, L. Ondič<sup>1</sup>

<sup>1</sup>Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10/112, 162 00 Prague, Czech Republic

5.140

**Mechanistic insight into the formation of SiV ensembles within polycrystalline diamond**

L. Ondič<sup>1</sup>, I. Hlaváč Bydžovská<sup>1,2</sup>, O. Babčenko<sup>1</sup>, A. Kromka<sup>1</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, 16200, Prague 6, Czech Republic, <sup>2</sup>Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Břehová 7, 11519 Prague, Czech Republic

5.141

**Optical coherent control over orbitally split states in negatively charged silicon vacancy in diamond**

V. Kondratyev<sup>1</sup>, R. Ulbricht<sup>1</sup>

<sup>1</sup>Max-Planck-Institut für Polymerforschung, Ackermannweg 10, 55128 Mainz, Germany

5.142

**Integration of Diamond Nanobeams with SnVs on Al<sub>2</sub>O<sub>3</sub> waveguides for Scalable Quantum Computer Application**

Y. Yang<sup>1</sup>, T. Miyatake<sup>1</sup>, M. Hida<sup>1</sup>, N. Fushimi<sup>1</sup>, K. Kaminaka<sup>1</sup>, R. Kitagawa<sup>1</sup>, T. Iwai<sup>1</sup>, I. Takagi<sup>1</sup>, H. Matsukiyo<sup>2</sup>, S. Ishida<sup>2</sup>, S. Iwamoto<sup>2</sup>, T. Miyazawa<sup>1</sup>, K. Kawaguchi<sup>1</sup>, R. Ishihara<sup>3</sup>, S. Sato<sup>1</sup>

<sup>1</sup>Fujitsu Limited, Atsugi, Kanagawa, Japan, <sup>2</sup>Research Center for Advanced Science and Technology, University of Tokyo, Meguro-ku, Tokyo, <sup>3</sup>Delft University of Technology, Delft, The Netherlands

5.143

**Towards scalable nanophotonic interfaces for single tin-vacancy centers in diamond**

J. Fait<sup>1</sup>, K. Mark<sup>1</sup>, G. A. Hunter-Smith<sup>1</sup>, N. Klingner<sup>2</sup>, A. Sadzak<sup>3</sup>, A. Krueger<sup>3</sup>, G. Astakhov<sup>2</sup>, C. Becher<sup>1</sup>

<sup>1</sup>Fachbereich Physik, Universität des Saarlandes, 66123, Saarbrücken, Germany, <sup>2</sup>Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden - Rossendorf (HZDR), 01328, Dresden, Germany, <sup>3</sup>Institute of Organic Chemistry, University of Stuttgart, 70569, Stuttgart, Germany

20:00 Closing Day 1 "Hasselt Diamond Workshop 2026 – SBDD XXX".

## Thursday, March 5, 2026

### Session 6

#### Quantum Growth & Application

Chair: *To be determined*

09:00

6.1 (Invited)

#### Group-IV vacancy centers in diamond and NV diamond engineering

T. Iwasaki<sup>1</sup>

<sup>1</sup>*Department of Electrical and Electronic Engineering, School of Engineering, Institute of Science Tokyo*

09:30

6.2

#### Time-Resolved Material Science using a Tin-Vacancy Center in Diamond as a Quantum Electrometer

C. Gurr<sup>1</sup>, C. Güney Torun<sup>1</sup>, G. Pieplow<sup>1</sup>, T. Schröder<sup>1,2</sup>

<sup>1</sup>*Institut für Physik, Humboldt-Universität zu Berlin, Newtonstraße 15, Berlin, Germany,* <sup>2</sup>*Ferdinand-Braun-Institut gGmbH, Leibniz-Institut für Höchstfrequenztechnik, Gustav-Kirchhoff-Straße 4, Berlin, Germany*

09:50

6.3

#### Low-Nitrogen Quantum Diamond: Material Engineering and Optimisation for use in Pulsed Magnetometry

J. Tang<sup>1,2</sup>, C. A. Roncaioli<sup>3</sup>, A. M. Edmonds<sup>4</sup>, A. Davidsson<sup>5</sup>, C. A. Hart<sup>1</sup>, M. Markham<sup>4</sup>, R. L. Walsworth<sup>1,2,6</sup>

<sup>1</sup>*Quantum Technology Center, University of Maryland, College Park, MD, United States,* <sup>2</sup>*Department of Physics, University of Maryland, College Park, MD, United States,* <sup>3</sup>*DEVCOM Army Research Laboratory, Adelphi, MD, United States,,* <sup>4</sup>*Element Six Global Innovation Centre, Didcot, Oxfordshire, United Kingdom,,* <sup>5</sup>*Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, United States,* <sup>6</sup>*Department of Electrical Engineering and Computer Science, University of Maryland, College Park, MD, United States*

10:10

6.4

#### Coherence time of 12C enriched freestanding single crystal CVD diamond

T. Teraji<sup>1</sup>, J. Chen<sup>1</sup>, C. Shinei<sup>1,2</sup>, H. Abe<sup>3</sup>, Y. Masuyama<sup>3</sup>

<sup>1</sup>*National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan,* <sup>2</sup>*University of Tsukuba, T 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8577, Japan,* <sup>3</sup>*National Institutes for Quantum Science and Technology, Takasaki, Gunma 370-1292, Japan*

10:30 Coffee Break (Grand Banquet Hall)

### Session 7

#### Diamond Electronic Devices

Chair: *To be determined*

11:10

7.1 (Invited)

#### Channel mobility of hexagonal boron nitride/hydrogen-terminated diamond heterojunction field-effect transistor

Y. Sasama<sup>1</sup>, Y. Takahide<sup>1,2</sup>

<sup>1</sup>*National Institute for Materials Science,* <sup>2</sup>*University of Tsukuba*

11:40

7.2

#### Over 400V Field-Plate Enhanced Vertical Diamond Schottky Diodes with Near-Ideal Behavior and 3000A/cm<sup>2</sup> Current Density

V. Maurya<sup>1</sup>, M. Guerrero<sup>1</sup>, R. Issaoui<sup>2</sup>, J. Bassaler<sup>1</sup>, J. Letellier<sup>1</sup>

<sup>1</sup>*DIAMFAB, 5 impasse de Charvet, 38600 Fontaine, FRANCE,* <sup>2</sup>*HiQuTe Diamond, 20 B RUE DANJOU 92100 Boulogne Billancourt, France*

**12:00**

7.3

**Avalanche Ionization and Radiation Damage Recovery in Vertical Single-Crystal Diamond Schottky Diodes**

M. Pomorski<sup>1</sup>, D. Fras<sup>1</sup>, R. Gourad<sup>1</sup>, M. Jaksic<sup>2</sup>, M. Matijevic<sup>2</sup>, C. Masante<sup>3</sup>, G. Provatas<sup>2</sup>, H. Soares-Antunes<sup>3</sup>, L. Le Van-Jodin<sup>3</sup>

<sup>1</sup>Université Paris-Saclay, CEA-List, F-91122, Palaiseau, France, <sup>2</sup>Laboratory for Ion Beam Interactions, Ruder Bošković Institute, Bijenička cesta 54, 10000, Zagreb, Croatia, <sup>3</sup>Université Grenoble Alpes, CEA-Leti, F-38000 Grenoble, France

**12:20**

7.4

**Investigating the Stability and Control of Valley-Polarized Transport in Diamond**

S. Majdi<sup>1</sup>, J. Isberg<sup>1</sup>, R. Yamazaki<sup>1</sup>, N. Suntornwipat<sup>1</sup>

<sup>1</sup>Diamond Electronics group, Department of Electrical Engineering, Ångström laboratory, Uppsala University, Box 65, SE-751 03, Sweden

**12:40 Lunch (Grand Banquet Hall) + Joint Committees Meeting (Fluistertuin)**

**Session XXX**

Chair: **The SBDD XXX Organisers**

**14:10**

Special

**Session 8**

**Diamond Processing & Devices**

Chair: **To be determined**

**14:40**

8.1

**Diamond SAW devices for 5G Transceivers**

J. Cuenca<sup>1</sup>, S. Mandal<sup>1</sup>, O. Williams<sup>1</sup>

<sup>1</sup>School of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA, United Kingdom

**15:00**

8.2

**Direct laser writing of diamond-based nanochannels and their integration into nanofluidic devices**

S. Janssens<sup>1</sup>, M. Ayu Ardini<sup>1</sup>, D. Vázquez-Cortés<sup>1</sup>, C. Cassidy<sup>2</sup>, E. Fried<sup>1</sup>

<sup>1</sup>Mechanics and Materials Unit, Okinawa Institute of Science and Technology Graduate University, 1919-1 Tancha, Onna-son, Kunigami-gun, Okinawa, Japan, <sup>2</sup>Science and Technology Group, Okinawa Institute of Science and Technology Graduate University, 1919-1 Tancha, Onna-son, Kunigami-gun, Okinawa, Japan

**15:20**

8.3

**Nanodiamond-Berberine Nanohybrids: A Physics-Driven Approach to Biocompatible Melanoma Therapy**

X.-Y. You<sup>1</sup>, Y.-C. Yeh<sup>1</sup>, Z.-Y. Peng<sup>1</sup>, P. Manik Badgujar<sup>1</sup>, C.-L. Cheng<sup>1</sup>

<sup>1</sup>Department of Physics, National Dong Hwa University, Taiwan

**Session 9**

**Posters II & Coffee Break**

Chairs: **To be determined**

**15:40 – 17:10 (Grand & Small Banquet Hall)**

For a detailed list of posters, see **Session 5**.

## Session 10

### Quantum Sensing

Chair: *To be determined*

17:10

10.1

#### Microscale mapping heat diffusion using widefield NV thermometry

L. Evanno<sup>1</sup>, M. Techer<sup>1</sup>, P.-J. Wu<sup>1,4</sup>, M.-P. Adam<sup>1</sup>, M. Schmidt<sup>1</sup>, M. Arousseau<sup>2</sup>, L. Toraille<sup>3</sup>, Y. Yung Hui<sup>4</sup>, H.-C. Chang<sup>4</sup>, D. Rochais<sup>2</sup>, J.-F. Roch<sup>1</sup>

<sup>1</sup>LUMIN, Université Paris-Saclay, CNRS, ENS Paris-Saclay, CentraleSupélec, 91190 Gif-sur-Yvette, France, <sup>2</sup>CEA, DAM, DIF, 91297 Arpajon, France, <sup>3</sup>CEA, DAM, Le Ripault, 37260, Monts, France, <sup>4</sup>Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei City 106319, Taiwan

17:30

10.2

#### Intracellular Temperature Sensing Using NV Centers in Nanodiamonds

A. Shmakova<sup>1</sup>, S. Zaghbouni<sup>2</sup>, M. Petrov<sup>1</sup>, R. Vandebosch<sup>1</sup>, K. Kvakova<sup>3</sup>, V. Chadimova<sup>3</sup>, J. Neburkova<sup>3</sup>, P. Cigler<sup>3</sup>, B. Brone<sup>2</sup>, M. Nesladek<sup>1</sup>

<sup>1</sup>IMO-IMOMEC, Hasselt University, Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>2</sup>BIOMED, Hasselt University, Agoralaan gebouw C, 3590 Diepenbeek, Belgium, <sup>3</sup>Institute of Organic Chemistry and Biochemistry of the CAS, Flemingovo nám. 2, 160 00 Prague, Czechia

17:50

10.3

#### The influence of surface functionalization on the properties of NV centres in nanodiamond and its relevance for biomedical quantum sensing

A. Sadzak<sup>1</sup>, E. Mayerhoefer<sup>1</sup>, I. Perez<sup>2</sup>, M. Guimaraes<sup>3</sup>, L. Spantzel<sup>2</sup>, F. Jelezko<sup>3</sup>, M. Börsch<sup>2</sup>, A. Krueger<sup>1</sup>

<sup>1</sup>Institute of Organic Chemistry, University of Stuttgart, Pfaffenwaldring 55, Stuttgart, Germany, <sup>2</sup>Single Molecule Microscopy Group, Jena University Hospital, Nonnenplan 2-4, 07743 Jena, Germany, <sup>3</sup>Institute for Quantum Optics, University of Ulm, Albert-Einstein-Allee 11, 89081 Ulm, Germany

18:10 Closing Day 2 “Hasselt Diamond Workshop 2026 – SBDD XXX”.

20:00 Conference Dinner at the *Ravel & De Boulevard* of the *Holiday Inn*.

## Friday, March 6, 2026

## Session 11

### Doped Diamond Devices

Chair: *To be determined*

09:00

11.1 (Invited)

#### Single-crystal boron-doped diamond electrochemistry governed by crystal orientation and surface engineering

S. Baluchová<sup>1</sup>, A. Taylor<sup>2</sup>, K. Schwarzová-Pecková<sup>1</sup>, A. Lytvynenko<sup>1,2</sup>, V. Mortet<sup>2</sup>

<sup>1</sup>Department of Analytical Chemistry, Faculty of Science, Charles University, Albertov 6, Prague 2, Czechia, <sup>2</sup>FZU – Institute of Physics of the Czech Academy of Sciences, Na Slovance 1999/2, Prague 8, Czechia

09:30

11.2

#### Positively charged filters for virus filtration

S. Mandal<sup>1</sup>, O. A Williams<sup>1</sup>

<sup>1</sup>School of Physics and Astronomy, Cardiff University, Cardiff, UK, CF24 3AA

09:50

11.3

#### **Black-Diamond-based High-Temperature Solar Cells**

D.M. Trucchi<sup>1</sup>, A. Bellucci<sup>1</sup>, E. Bolli<sup>1</sup>, M. Girolami<sup>1</sup>, M. Mastellone<sup>1</sup>, A. Mezzi<sup>2</sup>, S. Orlando<sup>1</sup>, R. Polini<sup>3</sup>, R. Salerno<sup>1,3</sup>, A. Santagata<sup>1</sup>, V. Serpente<sup>1</sup>, V. Valentini<sup>1</sup>

<sup>1</sup>*Istituto di Struttura della Materia, National Research Council of Italy, Italy*, <sup>2</sup>*Istituto per lo Studio dei Materiali Nanostrutturati, National Research Council of Italy, Italy*, <sup>3</sup>*Dipartimento di Scienze e Tecnologie Chimiche, TorVergata University, Italy*

10:10

11.4

#### **Enhancing CO<sub>2</sub> reduction with large-surface-area BDD electrodes**

M. Mao<sup>1</sup>, G. Iwai<sup>2</sup>, Y. Einaga<sup>2</sup>, P. W. May<sup>1</sup>

<sup>1</sup>*School of Chemistry, University of Bristol, Bristol, BS8 1TS, United Kingdom*, <sup>2</sup>*Department of Chemistry, Keio University, 3-14-1 Hiyoshi, Yokohama 223-8522, Japan*

**10:30 Coffee Break (Grand Banquet Hall)**

### **Session 12**

#### **Quantum Physics & Application III**

Chair: *To be determined*

11:00

12.1 (Invited)

#### **Graphene-diamond: Next-generation all carbon hybrid materials**

S. Majidi<sup>1</sup>, N. Suntornwipat<sup>1</sup>, R. Yamazaki<sup>1</sup>, A. Aitkulova<sup>1</sup>, J. Isberg<sup>1</sup>

<sup>1</sup>*Division of Electricity, Department of Electrical Engineering, Uppsala University, Box 65, 751 03, Uppsala, Sweden*

11:30

12.2

#### **Electrical detection of NV-based DEER for nanoscale spin bath spectroscopy**

O. Rubinas<sup>1,2</sup>, J. Prooth<sup>1,2</sup>, M. Petrov<sup>1</sup>, D. Chvátíl<sup>3</sup>, E. Bourgeois<sup>1,2</sup>, M. Nesladek<sup>1,2</sup>

<sup>1</sup>*Institute for Material Research (IMO), Hasselt University, Wetenschapspark 1, Diepenbeek, Belgium*, <sup>2</sup>*IMOMEC, IMEC, Kapeldreef 75, Heverlee, Belgium*, <sup>3</sup>*Department of Accelerators Nuclear Physics Institute of the CAS, Rez Husinec 25068, Czech Republic*

11:50

12.3

#### **Voltage dependent depletion of a long-lived charge reservoir as a pathway to all electrical single-spin readout**

A. Ulibarri<sup>1</sup>, D. McCloskey<sup>1,2</sup>, D. Wang<sup>1</sup>, N. Donschuk<sup>1</sup>, A. Martin<sup>1</sup>, A. Wood<sup>1</sup>

<sup>1</sup>*School of Physics, University of Melbourne, Parkville, VIC 3010, Australia.*, <sup>2</sup>*Australian Research Council Centre of Excellence in Quantum Biotechnology, School of Physics, University of Melbourne, Parkville, VIC 3010, Australia.*

12:10

12.4

#### **Homogeneous Free-Standing Nanostructures from Bulk Diamond over Millimeter Scales for Quantum Technologies**

A. Corazza<sup>1</sup>, S. Ruffieux<sup>1</sup>, Y. Zhu<sup>2</sup>, C. A. Jamarillo Concha<sup>2</sup>, Y. Fontana<sup>1</sup>, M. Obramenko<sup>1</sup>, C. Galland<sup>2</sup>, R. J. Warburton<sup>1</sup>, P. Maletinsky<sup>1</sup>

<sup>1</sup>*Department of Physics, University of Basel, CH-4056 Basel, Switzerland*, <sup>2</sup>*Institute of Physics and Center for Quantum Science and Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, Switzerland*

12:30

12.5

#### **Chipscale diamond quantum systems for sensing and timekeeping**

T. Chen<sup>1</sup>, C. W. Zollitsch<sup>2</sup>, S. Nur<sup>1</sup>

<sup>1</sup>*Department of Quantum Computer Engineering, Faculty of Electrical Engineering Mathematics and Computer Science, Delft University of Technology, Delft, The Netherlands*, <sup>2</sup>*Department of Chemistry, Saarland University, Saarbrücken, Germany*

**12:50 Lunch (Grand Banquet Hall)**

## Session 13

### Quantum Magnetometry

Chair: *To be determined*

**14:10**

13.1

#### **Microwave-free <sup>13</sup>C hyperpolarization in randomly oriented diamond particles enhanced by kHz spinning**

R. Blinder<sup>1</sup>, G. Muzabirova<sup>2</sup>, V. N. Agafonov<sup>3</sup>, R. Witter<sup>1</sup>, J. Matysik<sup>2</sup>, F. Jelezko<sup>1,4</sup>

<sup>1</sup>*Institute for Quantum Optics, Albert-Einstein Allee 11, Ulm University, 89081 Ulm, Germany*, <sup>2</sup>*Department of Analytical Chemistry, Leipzig University, Linnéstrasse 3, 04103 Leipzig, Germany*, <sup>3</sup>*GREMAN UMR 7347, University F. Rabelais, 37200 Tours, France*, <sup>4</sup>*Centre for Integrated Quantum Science and Technology (IQST), Ulm 89081, Germany*

**14:30**

13.2

#### **Laser-Enhanced Quantum Sensing with NV Ensembles in Diamond**

F. Schall<sup>1</sup>, L. Lindner<sup>1</sup>, Y. Rottstaedt<sup>1</sup>, J. J. Schindler<sup>1</sup>, T. Probst<sup>1</sup>, M. Rattunde<sup>1</sup>, F. Reiter<sup>1</sup>, R. Quay<sup>1</sup>, R. Bek<sup>2</sup>, A. M. Zaitsev<sup>3</sup>, T. Ohshima<sup>4</sup>, A. D. Greentree<sup>5</sup>, J. Jeske<sup>1</sup>

<sup>1</sup>*Fraunhofer Institute for Applied Solid State Physics IAF, Tullastraße 72, 79108 Freiburg, Germany*, <sup>2</sup>*Twenty-One Semiconductors GmbH, Kiefernweg 4, 72654 Neckartenzlingen, Germany*, <sup>3</sup>*College of Staten Island (CUNY), 2800 Victory Blvd., Staten Island, NY 10312, USA*, <sup>4</sup>*Nat. Inst. for Quantum Science and Technology (QST), 1233 Watanuki, Takasaki, Gunma 370-1292, Japan*, <sup>5</sup>*ARC Centre of Excellence for Nanoscale BioPhotonics, RMIT University, Melbourne VIC 3001, Australia*  
*OPTIMAS, RPTU University Kaiserslautern-Landau, Erwin-Schrödinger-Str., Kaiserslautern, Germany*

**14:50**

13.3

#### **Quantum Diamond Magnetometry : High-Pressure Sensing for High-Tc Superconductivity**

C. Roussy<sup>1</sup>, C. Dailledouze<sup>1</sup>, I. Belgacem<sup>1</sup>, K. On Ho<sup>1</sup>, A. Hilberer<sup>2,3</sup>, L. Toraille<sup>2,3</sup>, B. Yavkin<sup>1</sup>, M.-P. Adam<sup>1</sup>, M. Schmidt<sup>1</sup>, P. Loubeyre<sup>2,3</sup>, J. François Roch<sup>1</sup>

<sup>1</sup>*Université Paris-Saclay, CNRS, ENS Paris-Saclay, CentralSupélec, LuMIn, F-91190 Gif-sur-Yvette, France*, <sup>2</sup>*CEA DAM, DIF, F-91297 Arpajon, France*, <sup>3</sup>*Université Paris-Saclay, CEA, Laboratoire Matière en Conditions Extrêmes, 91680 Bruyères-le-Châtel, France*

**15:10**

13.4

#### **Endoscopic magnetic-field sensor based on nitrogen-vacancy centers in diamond**

S. Johansson<sup>1</sup>, D. Lönard<sup>1</sup>, I. Cardoso Barbosa<sup>1</sup>, A. Erlenbach<sup>1</sup>, A. Bukschat<sup>1</sup>, A. Thomas<sup>1</sup>, J. Gutsche<sup>1</sup>, A. Widera<sup>1</sup>

<sup>1</sup>*Department of Physics and Research Center OPTIMAS, RPTU University Kaiserslautern-Landau, Erwin-Schrödinger-Str., Kaiserslautern, Germany*

**15:30** Closing **“Hasselt Diamond Workshop 2026 – SBDD XXX”**.



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# HASSELT DIAMOND WORKSHOP 2026 – SBDD XXX

## Tuesday, March 3 , 2026

18:00 – 22:00 Registration and reception *Café Café*.

## Wednesday, March 4, 2026

08:20 – 08:50 Registration at the *cultuurcentrum Hasselt*.

08:50 – 09:00 Opening “Hasselt Diamond Workshop 2026 – SBDD XXX”.

09:00 – 10:10 **Session 1**

**Field Effect Devices**

Chair: **Julien Pernot, CNRS/Université Grenoble Alpes-Institut Néel, France**

10:10 – 10:50 Coffee Break (Grand Banquet Hall)

10:50 – 12:20 **Session 2**

**Quantum Physics & Application I**

Chair: *To be determined*

12:20 SBDD XXX group photo (Lecture Hall)

12:30 – 14:10 Lunch (Grand Banquet Hall)

14:10 – 15:40 **Session 3**

**CVD Diamond**

Chair: *To be determined*

15:40 – 16:20 Coffee Break (Grand Banquet Hall)

16:20 – 17:50 **Session 4**

**Quantum Physics & Application II**

Chair: *To be determined*

17:50 – 20:00 **Session 5**

**Posters I & Reception sponsored by:**

Chairs: *To be determined*

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20:00 Closing Day 1 “Hasselt Diamond Workshop 2026 – SBDD XXX”.

## Thursday, March 5, 2026

09:00 – 10:30 **Session 6**

**Quantum Growth & Application**

Chair: *To be determined*

10:30 – 11:10 Coffee Break (Grand Banquet Hall)

11:10 – 12:40 **Session 7**

**Diamond Electronic Devices**

Chair: *To be determined*

12:40 – 14:10 Lunch (Grand Banquet Hall)

|               |                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------|
| 14:10 – 14:40 | <b>Session XXX</b><br>Chair: <b>The SBDD Organisers</b>                                       |
| 14:40 – 15:40 | <b>Session 8</b><br><b>Diamond Processing &amp; Devices</b><br>Chair: <i>To be determined</i> |
| 15:40 – 17:10 | <b>Session 9</b><br><b>Posters II</b><br>Chairs: <i>To be determined</i>                      |
| 17:10– 18:10  | <b>Session 10</b><br><b>Quantum Sensing</b><br>Chair: <i>To be determined</i>                 |
| 18:10         | Closing Day 2 <b>“Hasselt Diamond Workshop 2026 – SBDD XXX”</b> .                             |
| 20:00         | Conference dinner at the <i>Ravel &amp; De Boulevard</i> of the <i>Holiday Inn</i> .          |

## Friday, March 6, 2026

|               |                                                                                                     |
|---------------|-----------------------------------------------------------------------------------------------------|
| 09:00 – 10:30 | <b>Session 11</b><br><b>Doped Diamond Devices</b><br>Chair: <i>To be determined</i>                 |
| 10:30 – 11:00 | Coffee Break (Grand Banquet Hall)                                                                   |
| 11:00 – 12:50 | <b>Session 12</b><br><b>Quantum Physics &amp; Application III</b><br>Chair: <i>To be determined</i> |
| 12:50 – 14:10 | Lunch (Grand Banquet Hall)                                                                          |
| 14:10 – 15:30 | <b>Session 13</b><br><b>Quantum Magnetometry</b><br>Chair: <i>To be determined</i>                  |
| 15:30         | Closing <b>“Hasselt Diamond Workshop 2026 – SBDD XXX”</b> .                                         |



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