



## Hasselt Diamond Workshop 2023

### SBDD XXVII



**March 15 – 17, 2023**

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

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

### Tuesday, March 14, 2023

18:00 – 19:00 Registration at the *Express by Holiday Inn* & Reception sponsored by:



### Wednesday, March 15, 2023

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

08:50 – 09:00 Opening "*Hasselt Diamond Workshop 2023 – SBDD XXVII*".

#### Session 1

##### Electronic Devices

Chair: **David A.J. Moran, University of Glasgow, U.K.**

09:00

1.1 (Invited)

**Oxidized silicon terminated diamond FETs operated as deep normallyoff without deteriorating drain current density**

H. Kwarada

*Faculty of Science & Engineering, Waseda University, Shinjuku, Tokyo, Japan*

9:30

1.2

**Deep-depletion diamond metal–oxide–semiconductor field-effect transistor with source-field plate for power converters**

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

<sup>1</sup>DIAMFAB, 25 avenue des Martyrs, 38042 Grenoble, France, <sup>2</sup>LAPLACE, Univ. Toulouse III Paul Sabatier, 2 rue Charles Camichel, 31071 Toulouse, France, <sup>3</sup>Institut Néel, Univ. Grenoble Alpes, CNRS, Grenoble INP, 38000 Grenoble, France

9:50

1.3

**Design and technology of Normally-off Diamond Reverse Blocking MESFET**

J. Cañas<sup>1,2</sup>, A. C. Pakpour-Tabrizi<sup>3</sup>, T. Trajkovic<sup>4</sup>, F. Udrea<sup>5</sup>, D. Eon<sup>1</sup>, E. Gheeraert<sup>1</sup>, R. B. Jackman<sup>3</sup>

<sup>1</sup>University Grenoble Alpes, CNRS, Grenoble INP, Institut NEEL, Grenoble, France, <sup>2</sup>University of Cadix, Cadix, Spain, <sup>3</sup>London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, University College London (UCL), London, WC1H 0AH, U.K., <sup>4</sup>Cambridge Microelectronics Ltd, 1 Cambridge House, Camboro Business Park, Oakington Road, Girton, Cambridge, CB3 0QH, UK, <sup>5</sup>Department of Engineering, University of Cambridge, Cambridge, CB3 0FA, UK

**10:10**

1.4 (Invited)

### **Diamond Electronics for Harsh Environmental Applications**

H. Umezawa

*National Institute of Advanced Industrial Science and Technology (AIST), 1-8-31 Midorigaoka, Ikeda, Osaka, Japan*

**10:40 Coffee Break (Grand Banquet Hall)**

## **Session 2**

### **Colour Centres & Optical Emission**

Chair: **To be defined**

**11:20**

2.1

#### **Near-infrared fluorescent color centers in diamond**

M. O. de Vries<sup>1</sup>, A. I. Shames<sup>2</sup>, S. Mukherjee<sup>3</sup>, Z.-H. Zhang<sup>3</sup>, D. G. Oblinsky<sup>4</sup>, B. C. Johnson<sup>5</sup>, B. C. Gibson<sup>1</sup>, A. D. Greentree<sup>1</sup>, A. M. Edmonds<sup>6</sup>, N. Palmer<sup>6</sup>, M. L. Markham<sup>6</sup>, Á. Gali,<sup>7</sup> G. Thiering,<sup>7</sup> A. Dalis<sup>8</sup>, T. Dumm<sup>8</sup>, G. D. Scholes<sup>4</sup>, O. Shenderova<sup>9</sup>, A. Zaitsev<sup>10</sup>, A. Stacey<sup>5</sup>, N. P. de Leon<sup>3</sup>, P. Reineck<sup>1</sup>

<sup>1</sup>ARC Centre of Excellence for Nanoscale BioPhotonics, School of Science, RMIT University, Melbourne, Victoria 3001, Australia,

<sup>2</sup>Department of Physics, Ben-Gurion University of the Negev, Beer-Sheva 8410501, Israel, <sup>3</sup>Department of Electrical and Computer Engineering, Princeton University, Princeton, New Jersey 08544, USA, <sup>4</sup>Department of Chemistry, Princeton University, Princeton, New Jersey 08544, USA, <sup>5</sup>School of Science, RMIT University, Melbourne, Victoria 3001, Australia, <sup>6</sup>Element Six, Harwell, OX11 0QR, UK,

<sup>7</sup>Wigner Research Centre for Physics, P.O. Box 49, 1525 Budapest, Hungary, <sup>8</sup>Hyperion Materials & Technologies, 6325 Huntley Road,

Columbus, Ohio 43229, USA, <sup>9</sup>Adámas Nanotechnologies, Inc., Raleigh, NC 27617, USA, <sup>10</sup>College of Staten Island (CUNY), Staten Island,

NY 10312, USA

**11:40**

2.2

#### **Emission efficiency study of Ge-V centers fabricated upon ion implantation and HPHT treatment**

E. Nieto Hernández<sup>1,2</sup>, E. Redolfi<sup>1</sup>, C. Stella<sup>1,3</sup>, G. Andriani<sup>4,2</sup>, E. Corte<sup>1,2</sup>, S. Sachero<sup>5</sup>, S. Ditalia Tchernij<sup>1,2,3</sup>, F. Picariello<sup>3</sup>, T. Herzig<sup>6</sup>, Y.M. Borzdov<sup>7</sup>, I.N. Kupriyanov<sup>7</sup>, A. Kubanek<sup>5</sup>, P. Olivero<sup>1,2,3</sup>, J. Meijer<sup>6</sup>, P. Traina<sup>3</sup>, Y. N. Palyanov<sup>7</sup>, J. Forneris<sup>1,2,3</sup>

<sup>1</sup>Department of Physics, University of Torino, Italy, <sup>2</sup>Istituto Nazionale di Fisica Nucleare (INFN), sezione di Torino, Torino, Italy, <sup>3</sup>Istituto

Nazionale di Ricerca Metrologica (INRiM), Torino, Italy, <sup>4</sup>Department of Electronics and Communications, Politecnico di Torino, Torino,

Italy, <sup>5</sup>Institute for Quantum Optics, Universität Ulm, D-89069 Ulm, Germany, <sup>6</sup>Applied Quantum Systems, Felix-Bloch Institute for

Solid-State Physics, Universität Leipzig, Germany, <sup>7</sup>V.S. Sobolev Institute of Geology and Mineralogy, Siberian Branch of the Russian

Academy of Sciences, Novosibirsk 630090, Russian Federation

**12:00**

2.3

#### **Nearly Identical Photons from Multiple Tin-Vacancy Centers in Diamond**

Y. Narita<sup>1</sup>, P. Wang<sup>1</sup>, K. Ikeda<sup>1</sup>, K. Oba<sup>1</sup>, Y. Miyamoto<sup>2</sup>, T. Taniguchi<sup>3</sup>, S. Onoda<sup>4</sup>, M. Hatano<sup>1</sup>, T. Iwasaki<sup>1</sup>

<sup>1</sup>Department of Electrical and Electronic Engineering, School of Engineering, Tokyo Institute of Technology, Meguro, Tokyo 152-8552,

Japan, <sup>2</sup>Research Center for Computational Design of Advanced Functional Materials, National Institute of Advanced Industrial Science

and Technology, Tsukuba, Ibaraki 305-8568, Japan, <sup>3</sup>International Center for Materials Nanoarchitectonics, National Institute for

Materials Science, Tsukuba, Ibaraki 305-0044, Japan, <sup>4</sup>Takasaki Advanced Radiation Research Institute, National Institutes for

Quantum Science and Technology, 1233 Watanuki, Takasaki, Gunma 370-1292, Japan

**12:20**

2.4

#### **Effect of Rydberg exciton states on the optical spectrum of diamond**

K. Konishi, R. Toda and N. Naka

*Department of Physics, Kyoto University, Kitashirakawa Oiwakecho, Sakyo, Kyoto, 606-8502, Japan*

**12:40 SBDD XXVII group photo (Front entrance ccHa)**

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

## Session 3

### Bio Applications

Chair: **To be defined**

**14:20**

3.1 (Invited)

#### **Bio-sensing based on optically trapped nanodiamonds with NV-centers**

M. Niora<sup>1</sup>, F. Kalantarifard<sup>1</sup>, A. Dervillez<sup>1</sup>, R. Giri<sup>2,3</sup>, R. H. Jensen<sup>2</sup>, A. Huck<sup>2</sup>, K. Berg-Sørensen<sup>1</sup>

<sup>1</sup>Dept of Health Technology, Technical University of Denmark, Ørsteds Plads, 2800 Kongens Lyngby, Denmark, <sup>2</sup>Dept of Physics, Technical University of Denmark, Fysikvej, 2800 Kongens Lyngby, Denmark, <sup>3</sup>Currently with Dept of Electrical and Photonics Engineering, Technical University of Denmark, Ørsteds Plads, 2800 Kongens Lyngby, Denmark

**14:50**

3.2

#### **Photo responsive nanodiamond based image guided therapeutic strategy for tumour hypoxia**

R. Selvam<sup>1</sup>, W. Gem Pearl<sup>1</sup>, A. Karmenyan<sup>1</sup>, E. V. Perevedentseva<sup>2</sup>, C.-L. Cheng<sup>1</sup>

<sup>1</sup>Department of Physics, National Dong Hwa University, Hualien, Taiwan, <sup>2</sup>P. N. Lebedev Physics Institute of Russian Academy of Science, Moscow, 119991, Russia

**15:10**

3.3

#### **Nanodiamonds as artificial proteins for regulation of cell signalling**

P. Cigler<sup>1</sup>

<sup>1</sup>Institute of organic chemistry and biochemistry of the CAS, Czechia

**15:30**

3.4

#### **NV centers in nanodiamonds for bio-sensing: detection of temperature variations in neurons**

E. Losero<sup>1</sup>, G. Petrini<sup>1</sup>, C. Stella<sup>1</sup>, G. Tomagra<sup>3</sup>, E. Bernardi<sup>1</sup>, E. Moreva<sup>1</sup>, P. Traina<sup>1</sup>, A. Marcantoni<sup>3</sup>, F. Picollo<sup>4</sup>, K. Kvakova<sup>5,2</sup>, P. Cigler<sup>5</sup>, I.P. Degiovanni<sup>1,4</sup>, V. Carabelli<sup>3</sup>, M. Genovese<sup>1,4</sup>

<sup>1</sup>INRiM, Istituto Nazionale di Ricerca Metrologica, Strada delle cacce 91, Turin, Italy, <sup>2</sup>Institute of Medical Biochemistry and Laboratory Diagnostics, Katerinska 1660/32, 121 08 Prague 2, Czechia, <sup>3</sup>Department of Drug and Science Technology, and NIS Interdepartmental Centre, Torino, Italy, <sup>4</sup>Istituto Nazionale di Fisica Nucleare (INFN) Sez. Torino, Torino, Italy, <sup>5</sup>Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, 166 10 Prague 6, Czechia

**15:50 Coffee Break (Grand Banquet Hall)**

## Session 4

### Nanodiamond Quantum Sensing

Chair: **To be defined**

**16:30**

4.1

#### **Diamond-doped optical fibres for remote magnetometry applications**

M. Capelli<sup>1</sup>, D. Bai<sup>1</sup>, H. Huynh<sup>2</sup>, S. Li<sup>1</sup>, W. Zhang<sup>3</sup>, P. Reineck<sup>1</sup>, D. A. Simpson<sup>4</sup>, S. Afshar.V<sup>3</sup>, A. D. Greentree<sup>1</sup>, S. Foster<sup>5</sup>, H. Ebendorff-Heidepriem<sup>2</sup>, B. C. Gibson<sup>1</sup>

<sup>1</sup>ARC Centre of Excellence for Nanoscale BioPhotonics, RMIT University, Melbourne, VIC 3001, Australia, <sup>2</sup>ARC Centre of Excellence for Nanoscale BioPhotonics and Institute of Photonics and Advanced Sensing, the University of Adelaide, Adelaide, SA 5005, Australia, <sup>3</sup>Laser Physics and Photonic Devices Laboratories, University of South Australia, Mawson Lakes, SA, 5095, Australia, <sup>4</sup>School of Physics, The University of Melbourne, VIC 3010, Australia <sup>5</sup>Defence Science and Technology Group, Edinburgh, SA 5111, Australia

16:50

4.2

#### **Nanodiamond hyperpolarization enabled by combined surface treatments**

R. Blinder<sup>1</sup>, Y. L. Mindarava<sup>1</sup>, C. Laube<sup>2</sup>, W. Knolle<sup>2</sup>, C. Jentgens<sup>3</sup>, V. N. Agafonov<sup>4</sup>, V. A. Davydov<sup>5</sup>, R. Witter<sup>1</sup>, and F. Jelezko<sup>1,6</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, 89081 Ulm, Germany, <sup>2</sup>Department of Functional Surfaces, Leibniz Institute of Surface Engineering, 04103 Leipzig, Germany, <sup>3</sup>Pureon AG, 8574 Lengwil, Switzerland, <sup>4</sup>GREMAN UMR 7347, University F. Rabelais, 37200 Tours, France, <sup>5</sup>L.F. Vereshchagin Institute for High Pressure Physics, RAS, Troitsk, Moscow, 108840, Russia, <sup>6</sup>Centre for Integrated Quantum Science and Technology (IQST), 89081 Ulm, Germany

17:10

4.3

#### **Long spin relaxation times in NV shell-doped nanodiamonds for biological sensing**

J. Prooth<sup>1</sup>, P. Petrov<sup>1\*</sup>, A. Shmakova<sup>1</sup>, M. Gulka<sup>2</sup>, P. Cigler<sup>2</sup>, J. D'Haen<sup>1</sup>, H.-G. Boyen<sup>1</sup>, M. Nesladek<sup>1</sup>

<sup>1</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590, Diepenbeek, Belgium, <sup>2</sup>Institute of Organic Chemistry and Biochemistry of the CAS, Prague, 166 10, Czech Republic

17:30

4.4

#### **Impact of Charge Conversion on NV-Center Relaxometry**

I. C. Barbosa<sup>1</sup>, J. Gutsche<sup>1</sup>, A. Widera<sup>1</sup>

<sup>1</sup>Department of Physics and State Research Center OPTIMAS, University of Kaiserslautern-Landau, Erwin-Schroedinger-Str. 46, 67663 Kaiserslautern, Germany

### **Session 5**

**Posters I & Reception sponsored by:**

**Chairs: To be defined**



17:50 – 19:50 (Grand & Small Banquet Hall)

5.1

#### **Fluorescent nanodiamonds measure the antioxidant capacity of a phytotherapeutic released from polymeric nanoparticles in fresh tissue**

E. Escobar-Chaves<sup>1,2,4</sup>, A. Llumbet<sup>1</sup>, A. Sigaeva<sup>1</sup>, N. Balcazar<sup>2,3</sup>, J. Orozco<sup>4</sup>, R. Schirhagl<sup>1</sup>

<sup>1</sup>Department of biomedical engineering, faculty of medical sciences, University of Groningen, Antonius Deusinglaan 19713 AV, Groningen, The Netherlands, <sup>2</sup>Molecular genetics group, faculty of natural and exact sciences, University of Antioquia, Calle 62 # 52-59, Medellin, Colombia. <sup>3</sup>Department of physiology and biochemistry, faculty of Medicine, University of Antioquia, Carrera 51D# 62-29, Medellin, Colombia. <sup>4</sup>Max Planck Tandem Group in Nanobioengineering, University of Antioquia, Ruta N, Calle 67 # 52-20, Medellin, Colombia

5.2

#### **LC superconducting micro-resonators for diamond dielectric characterization**

F. Mazzocchi, D. Strauß and T. Scherer

KIT IAM-AWP, Hermann Von Helmholtz Platz 1, Eggenstein Leopoldshafen – Germany

5.3

#### **Development of pheromone receptor-based biosensors for the early detection of insect pests**

O. Zaki<sup>1</sup>, E. Scorsoni<sup>1</sup>, G. Lissorgues<sup>2</sup>, L. Rousseau<sup>2</sup>

<sup>a</sup>Université Paris-Saclay, CEA, List, F-91120, Palaiseau, France, <sup>b</sup>ESIEE, Ecole Supérieure d'Ingénieurs en Electrotechnique et Electronique, Equipe Systèmes de Communication et Microsystèmes, ESYCOM—EA 2552, 2 Bd Blaise Pascal, 93162 Noisy-le-Grand, France

5.4

#### **Miniaturized fiber-based endoscope with direct laser written antenna structures**

S. Dix<sup>1</sup>, J. Gutsche<sup>1</sup>, E. H. Waller<sup>1,2</sup>, G. v. Freymann<sup>1,2</sup>, A. Widera<sup>1</sup>

<sup>1</sup>Department of Physics and State Research Center OPTIMAS, University of Kaiserslautern-Landau, Erwin-Schroedinger-Str. 46, 67663 Kaiserslautern, Germany, <sup>2</sup>Fraunhofer Institute for Industrial Mathematics ITWM, Fraunhofer-Platz 1, 67663 Kaiserslautern, Germany

5.5

**Electro-thermal analysis of paralleled diamond devices for higher total current**

M. Couret<sup>1</sup>, A. Castelan<sup>1,2</sup>, D. Eon<sup>3</sup>, E. Sarraute<sup>1</sup>, N. Rouger<sup>1</sup>

<sup>1</sup>Université de Toulouse, LAPLACE, CNRS, UPS, INPT, F-31071 Toulouse, France, <sup>2</sup>Institut Catholique d'Arts et Métiers, ICAM, F-31000 Toulouse, France, <sup>3</sup>Université Grenoble Alpes, Grenoble INP, Institut Néel, 38000, Grenoble, France

5.6

**Quantum sensing of cigarette smoke extract induced free radicals in human primary airway epithelial cells**

Y. Zhang<sup>#1</sup>, A. Sigaeva<sup>#1</sup>, N. Norouzi<sup>1</sup>, H.I. Heijink<sup>2</sup>, D. J. Slebos<sup>2</sup>, S.D. Pouwels<sup>2</sup>, R. Schirhagl<sup>1</sup>

<sup>1</sup>Department of Biomedical Engineering, University Medical Center Groningen, Groningen University, Antonius Deusinglaan 1, 9713AV Groningen, the Netherlands, <sup>2</sup>Department of Pulmonary Diseases, University Medical Center Groningen, Groningen University, Antonius Deusinglaan 1, 9713AV Groningen, the Netherlands

5.7

**Label-free in vitro localization and recognition of Nanodiamond as a bioprobe in lung cancer cell through Raman mapping with data mining approach**

P. Manik Badgujar, Y.-C. Lin, Z.-R. Lin, K.-T. Wu, C.-L. Cheng

Department of Physics, National Dong Hwa University, Hualien, Taiwan

5.8

**MeV ion implantation with in-situ sample heating using ion microprobe: example of novel MgV center in diamond**

M. Matijević<sup>1</sup>, Z. Siketić<sup>1</sup>, A. Crnjac<sup>1</sup>, M. Brajković<sup>1</sup>, E. Nieto Hernandez<sup>2</sup>, G. Andrini<sup>3</sup>, E. Corte<sup>2</sup>, J. Forneris<sup>2,4</sup>, S. Ditalia Tchernij<sup>2,4</sup>

<sup>1</sup>Ruđer Bošković Institute, Bijenička cesta 54, 10000 Zagreb, Croatia, <sup>2</sup>Physics Dept., University of Torino, and Istituto Nazionale di Fisica Nucleare sez. Torino, Italy, <sup>3</sup>Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, and Istituto Nazionale di Fisica Nucleare sez. Torino, Italy, <sup>4</sup>Division of Quantum Metrology and Nanotechnologies Istituto Nazionale di Ricerca Metrologica (INRiM) Strada delle Cacce 91, 10135 Torino, Italy

5.9

**Nanodiamond facilitated drug delivery in breast cancerous cells in 3D model using confocal fluorescence spectroscopy**

C.-Y. Huang, Y.-J. Su, C.-L. Cheng

Department of Physics, National Dong Hwa University, 97401, Hualien, Taiwan

5.10

**Temperature dependence time-resolved luminescence spectroscopy in synthetic NV<sup>0</sup> centres**

F. James<sup>1</sup>, A. Wassell<sup>1</sup>, C. McGuinness<sup>2</sup>, G. M. Klemencic<sup>1</sup>, C. Hodges<sup>1</sup>, D. Fisher, P. Martineau<sup>2</sup>, M. Newton<sup>3</sup>, and S. A. Lynch<sup>1</sup>

<sup>1</sup>School of Physics and Astronomy, Cardiff University, Queen's Buildings, The Parade, Cardiff CF24 3AA, U.K., <sup>2</sup>De Beers Group Ignite, Belmont Road, Maidenhead, Berkshire SL6 6JW, U.K., <sup>3</sup>Department of Physics, University of Warwick, Coventry, West Midlands CV4 7AL, U.K.

5.11

**Formation efficiency quantification of GeV center in diamond upon nanoscale ion implantation and annealing**

V. Pugliese<sup>1</sup>, G. Gavello<sup>1</sup>, E. N. Hernández<sup>1,2</sup>, E. Corte<sup>1,2</sup>, G. Andrini<sup>2</sup>, E. Redolfi<sup>1</sup>, A. Cian<sup>3</sup>, R. Dell'Anna<sup>3</sup>, P. Traina<sup>4</sup>, S. D. Tchernij<sup>1,2,4</sup>, P. Olivero<sup>1,2,4</sup>, I. De Giovanni<sup>2,4</sup>, D. Giubertoni<sup>3</sup>, J. Forneris<sup>1,2,4</sup>

<sup>1</sup>Department of Physics, University of Torino, Italy, <sup>2</sup>Istituto Nazionale di Fisica Nucleare, sezione di Torino, Italy <sup>3</sup>Sensors and Devices Center, Bruno Kessler Foundation, Trento, Italy, <sup>4</sup>Istituto Nazionale di Ricerca Metrologica (INRiM), Torino, Italy

5.12

**Heteroepitaxial diamond double-sided strip detectors**

K. Koyama<sup>1</sup>, K. Hitomi<sup>2</sup>, T. Onodera<sup>3</sup>, M. Nogami<sup>2</sup>, S.-W. Kim<sup>1</sup>

<sup>1</sup>Orbray diamond laboratory, Orbray Co., Ltd., Adachi Shinden, Tokyo, Japan, <sup>2</sup>Dept. of Quantum Science and Energy Engineering, Tohoku Univ., Aobayama, Sendai, Japan, <sup>3</sup>Dept. of Electrical and Electronic Engineering, Tohoku Inst. Tech., Yagiyamakasumicho, Sendai, Japan

5.13

**Towards Applying NV-Based Wide-Field Imaging for Electronic Circuit Analysis**

R. Eberle, N. Mathes, X. Vidal, P. Knittel

Fraunhofer Institute for Applied Solid State Physics, Tullastraße 72, Freiburg, Germany

5.14

**Creation of active diamond anti-reflective optical windows for omniphobic properties – D-FACTO**

S. B. Khemis<sup>1</sup>, E. Scorsone<sup>1</sup>

<sup>1</sup>*Université Paris-Saclay, CEA, LIST, F-9112, Palaiseau, France*

5.15

**X-Ray Diffraction production floor tools – optimized for measurement speed and accuracy**

H.-A. Bradaczek<sup>1</sup>, K. Dornich<sup>1</sup>, T. Clausen<sup>1</sup>

<sup>1</sup>*Freiberg Instruments GmbH, Delfter Str. 6, 09599 Freiberg, Germany*

5.16

**Spatial inhomogeneity of excitonic luminescence in synthetic diamond with internal strain**

D. Totsuka<sup>1</sup>, K. Konishi<sup>1</sup>, R. Toda<sup>1</sup>, J. Isberg<sup>2</sup>, N. Naka<sup>1</sup>

<sup>1</sup>*Department of Physics, Kyoto University, Kyoto 606-8502, Japan*, <sup>2</sup>*Department of Electrical Engineering, Uppsala University, Box 65, S-751 03, Uppsala, Sweden*

5.17

**Functionalisation of Detonation Nanodiamond with Zwitterionic Dipeptides for Improved Biocompatibility and Antibiofouling Properties**

E. Mayerhoefer<sup>1</sup>, H. N. Dongre<sup>2</sup>, D. E. Costea<sup>2</sup>, A. Krueger<sup>1</sup>

<sup>1</sup>*Institute of Organic Chemistry, University of Stuttgart, Pfaffenwaldring 55, 70569 Stuttgart, Germany*, <sup>2</sup>*The Gade Laboratory for Pathology and Centre for Cancer Biomarkers (CCBIO), Department of Clinical Medicine, University of Bergen, Jonas Lies vei 87, 5021 Bergen, Norway*

5.18

**Magnetometry sensitivity optimization in NV-centers using double-quantum excitation schemes**

A. Widera<sup>1</sup>, I. Cardoso Barbosa<sup>1</sup>, S. Dix<sup>1</sup>, D. Lönard<sup>1,2</sup>

<sup>1</sup>*Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Gottlieb-Daimler-Straße, 67663 Kaiserslautern, Germany*

5.19

**X-ray luminescent diamond materials: synthesis and study of YAG-based composites with varied concentration of Ce ions**

V. S. Sedov<sup>1</sup>, A. K. Martyanov<sup>1</sup>, I. A. Tiazhelov<sup>1</sup>, D. S. Vakalov<sup>2</sup>, K. N. Boldyrev<sup>3</sup>, S..V. Kuznetsov<sup>1</sup>

<sup>1</sup>*Prokhorov General Physics Institute of the Russian Academy of Sciences, Vavilov str. 38, Moscow 119991, Russia*, <sup>2</sup>*North Caucasus Federal University, 355009 Stavropol, Russia*, <sup>3</sup>*Institute of Spectroscopy of the Russian Academy of Sciences, Fizicheskaya 5, 108840 Troitsk, Russia*

5.20

**Paramagnetic nitrogen-vacancy color centers in diamonds for magnetic mapping and electric field sensing**

Z. Orzechowska<sup>1</sup>, P. Czarnecka<sup>1</sup>, M. Jani<sup>1</sup>, M. Mrózek<sup>1</sup>, A. Wojciechowski<sup>1</sup> and W. Gawlik<sup>1</sup>

<sup>1</sup>*Marian Smoluchowski Institute of Physics, Jagiellonian University, Prof. Stanisława Łojasiewicza 11, 30-348 Kraków, Poland*

5.21

**Superconducting boron doped nanocrystalline diamond for nanoscale Dayem bridges**

J. J. Bennett, S. Mandal, Yehya Megmami, O. A. Williams, S. R. Giblin, G. M. Klemencic

*School of Physics and Astronomy, Cardiff University, Queen's Building, The Parade, Cardiff, CF24 3AA, UK*

5.22

**Experimental and theoretical study of B-doped diamond-based Schottky barrier diodes**

R. Rouzbahani<sup>1</sup>, P. Pobedinskas<sup>1</sup>, J. Letellier<sup>2</sup>, D. Eon<sup>2</sup>, J. Pernot<sup>2</sup>, and K. Haenen<sup>1</sup>

<sup>1</sup>*Institute for Materials Research (IMO), Hasselt University, and IMOMEC, IMEC vzw, Diepenbeek, Belgium*, <sup>2</sup>*Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France*

5.23

**Thermally stimulated current measurements on heteroepitaxial diamond**

T. Grünwald, M. Bosak, S. Eberle, M. Schreck

*University of Augsburg, Institute of Physics, D-86135 Augsburg (Germany)*

5.24

#### **2,4,6-Trinitrotoluene Electrochemical Detection On Boron-Doped Diamond/Few-Layered Graphene Nanowall Electrodes**

I. Kaczmarzyk<sup>1</sup>, M. Sobaszek<sup>1</sup>, P. Prasuła<sup>2</sup>, A. Dettlaff<sup>3</sup>

<sup>1</sup>Gdańsk University of Technology, Faculty of Electronics, Telecommunications and Informatics, Narutowicza 11/12, 80-233 Gdańsk, Poland, <sup>2</sup>Military Institute of Armament Technology, Wyszyńskiego 7, 05-220 Zielonka, Poland, <sup>3</sup>Gdańsk University of Technology, Faculty of Chemistry, 11/12 Narutowicza Str., 80-233, Gdańsk, Poland

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#### **Heterojunction of metal oxides and boron-enhance carbon nanowalls towards the electrochemistry**

M. Sobaszek<sup>1</sup>, I. Kaczmarzyk<sup>1</sup>, M. Sawczak<sup>2</sup>, A. Pospichal<sup>3</sup>, P. Curda<sup>3</sup>, V. Stranak<sup>3</sup>, J. Karczewski<sup>4</sup> and A. Dettlaff<sup>5</sup>

<sup>1</sup>Department of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdansk University of Technology, 11/12 G. Narutowicza St., 80-233 Gdansk, Poland, <sup>2</sup>Centre for Plasma and Laser Engineering, The Szewalski Institute of Fluid-Flow Machinery, Polish Academy of Sciences, 14 Fiszerza St., 80-231 Gdansk, Poland, <sup>3</sup>University of South Bohemia, Institute of Physics, Branisovska 1760, 370 05, Ceske Budejovice, Czech Republic, <sup>4</sup>Faculty of Applied Physics and Mathematics, Gdansk University of Technology, 11/12 G. Narutowicza St., 80-233 Gdansk, Poland, <sup>5</sup>Gdańsk University of Technology, Faculty of Chemistry, Department of Energy Conversion and Storage, 11/12 Narutowicza Str., 80-233, Gdańsk, Poland

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#### **Rapid and sensitive electrochemical sensing of 2,4-dinitrotoluene on boron-doped carbon nanowalls electrodes at various synthesis parameters**

I. Kaczmarzyk<sup>1</sup>, M. Sobaszek<sup>1</sup>, A. Dettlaff<sup>1</sup>

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

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

C. Léonhart<sup>1,2,4,5</sup>, M-L. Gallin-Martel<sup>1</sup>, E. Gheeraert<sup>2,3</sup>, P. Barberet<sup>4</sup>, F. Vianna-Legros<sup>5</sup>, D. Dauvergne<sup>1</sup>, J-F. Muraz<sup>1</sup>, L. Gallin-Martel<sup>1</sup>, L. Abbassi<sup>2</sup>, J. Pernot<sup>2</sup>, D-D. Tran<sup>2,3</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>University of Tsukuba, Tsukuba 305-8573, Japan, <sup>4</sup>Univ. Bordeaux, CNRS, LP2I, UMR 5797, 33170 Gradignan, France, <sup>5</sup>IRSN, Laboratoire de Microirradiation, Métrologie et Dosimétrie des Neutrons (LMDN), 13108 Saint-Paul - lez-Durance, France

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#### **Graphitic Micro-channels in Diamond: An Impedance Spectroscopy Study**

C. Henderson<sup>1</sup>, M. Krueger<sup>2</sup>, M.P. Villar<sup>3</sup>, F. Lloret<sup>3</sup>, D.F. Reyes<sup>3</sup>, D. Araujo<sup>3</sup>, P. Salter<sup>2</sup> and R. B. Jackman<sup>1</sup>

<sup>1</sup>London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, UCL (University College London), 17-19 Gordon Street, London, WC1H 0AH, UK, <sup>2</sup>Department of Engineering Science, University of Oxford, Parks Road, Oxford OX1 3PJ, UK, <sup>3</sup>Dpt. Ciencia de los Materiales e IM y QI. Universidad de Cádiz, 11510-Puerto Real (Cádiz), Spain

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#### **Integration of fluorescent diamond particles with fiber-optic probes**

M. Ficek<sup>1</sup>, M. Głowacki<sup>1</sup>, M. Janik<sup>1</sup>, A. Filipkowski<sup>2</sup>, M. Mrózek<sup>3</sup>, P. Hänni<sup>4</sup>, A. Heidt<sup>5</sup>, P. Tararczak<sup>2</sup>, A. Wyszomłek<sup>2</sup>, P. Schweiger<sup>5</sup>, R. Buczyński<sup>2</sup>, A. Wojciechowski<sup>3</sup>, M. Klimczak<sup>2</sup> and R. Bogdanowicz<sup>1</sup>

<sup>1</sup>Gdańsk University of Technology, 11/12 G. Narutowicza St., 80-233, Gdańsk, Poland, <sup>2</sup>Faculty of Physics, University of Warsaw, Pasteura 5, Warsaw, 02-093, Poland, <sup>3</sup>Institute of Physics, Jagiellonian University in Kraków, Łojasiewicza 11, Kraków, 30-348 Poland, <sup>4</sup>Institute of Applied Physics, University of Bern, Sidlerstrasse 5, 3012 Bern, Switzerland, <sup>5</sup>Institute of Biotechnology and Molecular Medicine, 3 Trzy Lipy St., 80-172 Gdańsk, Poland

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#### **Dielectric analysis of oxide thin films to be used as the gate dielectric in diamond-based MOS structures**

B. Soto<sup>1,2</sup>, D. Araujo<sup>1</sup>, J. Pernot<sup>2</sup> and M.P. Villar<sup>1</sup>

<sup>1</sup>Dpt. Ciencia de los Materiales e IM y QI, Universidad de Cádiz, 11510, Pto. Real, Cádiz Spain, <sup>2</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000, Grenoble, France

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**Deposition of nanocrystalline diamond films on silicon and silicon carbide substrates by circumferential antenna plasma reactor for electron field emission application**

W.-C. Shih<sup>1</sup>, T.-Y. Chen<sup>1</sup>, S. T. R. Tseng<sup>2</sup>

<sup>1</sup>Graduate Institute of Electrical Engineering, Tatung University, Taipei 104, Taiwan, R.O.C., <sup>2</sup>Mastek Technologies, Inc., Xinzhuang 248, Taiwan, R.O.C.

5.32

**Crystal strain evaluation around dislocation by using nitrogen vacancy center**

M. Haruyama<sup>1</sup>, Y. Kato<sup>1</sup>, M. Ogura<sup>1</sup>, H. Kato<sup>1</sup>, T. Makino<sup>1</sup>

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

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**Characterization of lab grown diamonds produced by direct current chemical vapor deposition**

B. Lawrence, M. R. Linford, A. J. Lizarbe

Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT 84602, USA

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**Laser reflectance at the early stages of diamond deposition on seeded silicon substrates**

D. Vázquez-Cortés, S. D. Janssens, B. Sutisna, and E. Fried

Mathematics and Materials Unit, Okinawa Institute of Science and Technology Graduate University 1919-1 Tancha, Onna-son Okinawa, Japan

5.35

**MW CVD synthesis of polycrystalline diamond films in highly methane-rich gas mixtures**

A. K. Martyanov, V. S. Sedov, I. A. Tiazhelov

Prokhorov General Physics Institute of the Russian Academy of Sciences, 38 Vavilov str., Moscow, Russia

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**Epitaxy and characterization of W-doped diamond**

D. Nusimovici<sup>1,2</sup>, D. Eon<sup>3</sup>, E. Gheeraert<sup>3</sup>, D. Chaussende<sup>2</sup> and J. Bousquet<sup>1</sup>

<sup>1</sup>DIAMFAB, Grenoble, France, <sup>2</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMaP, Grenoble, France, <sup>3</sup>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France

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**Adhesion of MW CVD diamond coatings to WC-Co tools depending on the seed's size**

A. K. Martyanov<sup>1</sup>, V. S. Sedov<sup>1</sup>, E. E. Ashkinazi<sup>1</sup>, S. Mandal<sup>2</sup>, S. V. Fedorov<sup>3</sup>, S. N. Grigoriev<sup>3</sup>, V. G. Ralchenko<sup>1</sup>

<sup>1</sup>Prokhorov General Physics Institute of the Russian Academy of Sciences, 38 Vavilov str., Moscow, Russia, <sup>2</sup>School of Physics and Astronomy, Cardiff University, Queen's Buildings, The Parade, Cardiff, UK, <sup>3</sup>Moscow State Technological University STANKIN, Vadkovsky per., 1, Moscow, Russia

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**Insights into the photophysics of the SnV center in diamond**

P. Fuchs<sup>1</sup>, J. Görlitz<sup>1</sup>, M. Kieschnick<sup>2</sup>, J. Meijer<sup>2</sup>, and C. Becher<sup>1</sup>

<sup>1</sup>Universität des Saarlandes, Fachrichtung Physik, Campus E2.6, 66123 Saarbrücken, Germany, <sup>2</sup>Universität Leipzig, Angewandte Quantensysteme, Linnéstraße 5, 04103 Leipzig, Germany

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**Kelvin probe characterization of nanocrystalline diamond films with SiV centers as function of thickness**

J. Kuliček<sup>1</sup>, M. Marek<sup>1</sup>, N. Kumar<sup>1</sup>, Š. Potocký<sup>1</sup>, Š. Stehlík<sup>2</sup>, A. Kromka<sup>2</sup>, B. Rezek<sup>1</sup>

<sup>1</sup>Faculty of Electrical Engineering, Czech Technical University in Prague, Technická 2, Prague, Czech Republic, <sup>2</sup>Institute of Physics CAS, Cukrovarnická 10, Prague 16200, Czech Republic



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#### **Absolute Energy Levels in Nanodiamonds of Different Origins and Surface Chemistries**

D. Miliaieva<sup>1,5</sup>, A. Sokeng Djoumessi<sup>2,3</sup>, J. Cermak<sup>1</sup>, M. Schaal<sup>4</sup>, F. Otto<sup>4</sup>, E. Shagieva<sup>1</sup>, O. Romanyuk<sup>1</sup>, J. Pangrac<sup>1</sup>, J. Kulicek<sup>5</sup>, V. Nádaždy<sup>6,7</sup>, S. Stehlik<sup>1,8</sup>, A. Kromka<sup>1</sup>, H. Hoppe<sup>2,3</sup>, B. Rezek<sup>5</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Na Slovance 1999/2, 182 21 Prague 8, Czechia, <sup>2</sup>Center for Energy and Environmental Chemistry Jena (CEEC Jena), Friedrich Schiller University Jena, Philosophenweg 7a, 07743 Jena, Germany, <sup>3</sup>Laboratory of Organic and Macromolecular Chemistry (IOMC), Friedrich Schiller University Jena, Humboldtstrasse 10, 07743 Jena, Germany, <sup>4</sup>Institute of Solid State Physics, Friedrich Schiller University Jena, Helmholtzweg 5, 07743 Jena, Germany, <sup>5</sup>Faculty of Electrical Engineering, Czech Technical University in Prague, 166 27 Prague, Czechia, <sup>6</sup>Institute of Physics, Slovak Academy of Sciences, Dúbravská cesta 9, 845 11 Bratislava, Slovakia, <sup>7</sup>Centre for Advanced Material Application, Slovak Academy of Sciences, Dúbravská cesta 9, 845 11 Bratislava, Slovakia, <sup>8</sup>New Technologies – Research Centre, University of West Bohemia, Univerzitní 8, 306 14, Pilsen, Czechia

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#### **Diamond growth on non-diamond substrate: A zeta potential preview**

S. Mandal, E. L. H. Thomas, J. A. Cuenca, W. G. S. Leigh, O. A. Williams

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

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#### **Optimized fabrication of diamond nano-pillars**

S. Nuchikat<sup>1</sup>, J. Fait<sup>1</sup>, P. Fuchs<sup>1</sup>, G. Marchand<sup>1</sup>, C. Pauly<sup>2</sup>, F. Mücklich<sup>2</sup>, C. Becher<sup>1</sup>

<sup>1</sup>Fachbereich Physik, Universität des Saarlandes, 66123 Saarbrücken Germany, <sup>2</sup>Fachrichtung Materialwissenschaft und Werkstofftechnik, Universität des Saarlandes, 66123 Saarbrücken, Germany

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#### **New methodology for synthesis of high purity diamond microtubes**

J. Millán-Barba<sup>1</sup>, F. Lloret<sup>2</sup>, K. Haenen<sup>3,4</sup>, M. Gutiérrez<sup>1</sup>, D. Araujo<sup>1</sup>

<sup>1</sup>Dep. Materials Science and Metallurgical Engineering and Inorganic Chemistry, University of Cadiz, Spain, <sup>2</sup>Department of Applied Physics, University of Cádiz, Spain, <sup>3</sup>IMOMECE, IMEC vzw, Diepenbeek, Belgium, <sup>4</sup>Institute for Materials Research (IMO), Hasselt University, Diepenbeek, Belgium

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#### **Towards polycrystalline diamond thin films with optimized structural and optical properties for sensing applications**

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

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#### **Surface Functionalisation of Co-Doped n-type Diamond for the Application of a Thermionic Device**

R.-D. Holmes<sup>1</sup>, S. Ullah<sup>1</sup>, S. Li<sup>2</sup>, M. Cryan<sup>2</sup>, N. Fox<sup>1</sup>

<sup>1</sup>Bristol University Diamond Group, University of Bristol, UK, <sup>2</sup>Department of Electrical and Electronic Engineering, University of Bristol, UK

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#### **Fabrication and Investigation of Thin Single-Crystal Diamond Membranes with Low Surface Roughness for Quantum Photonics**

J. Heupel<sup>1</sup>, M. Pallmann<sup>2</sup>, J. Körber<sup>2,3</sup>, J. P. Reithmaier<sup>1</sup>, D. Hunger<sup>2</sup>, and C. Popov<sup>1</sup>

<sup>1</sup>Institute of Nanostructure Technologies and Analytics (INA), University of Kassel, Heinrich-Plett-Str. 40, 34132 Kassel, Germany, <sup>2</sup>Physikalisches Institut, Karlsruher Institute für Technologie (KIT), Wolfgang-Gaede-Str.1, 76131 Karlsruhe, Germany, <sup>3</sup>Physikalisches Institut, University of Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart, Germany

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#### **Photoluminescence excitation spectroscopy of silicon vacancy centers in monocrystalline and polycrystalline diamond**

J. Fait<sup>1</sup>, M. Varga<sup>1,3</sup>, A. Kromka<sup>1</sup>, B. Rezek<sup>2</sup>, L. Ondič<sup>1</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, 16200 Prague, Czech Republic, <sup>2</sup>Faculty of Electrical Engineering, Czech Technical University in Prague, Technická 27, 16627 Prague, Czech Republic, <sup>3</sup>Institute of Electrical Engineering, Slovak Academy of Sciences, Dúbravská cesta 9, 84104 Bratislava, Slovakia

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**Sensitive nuclear magnetic resonance modalities enabled by nanodiamonds**

Y. Mindarava<sup>1</sup>, R. Blinder<sup>1</sup>, M. Korzeczek<sup>2</sup>, C. Laube<sup>3</sup>, C. Jentgens<sup>4</sup>, W. Knolle<sup>3</sup>, M. Plenio<sup>2</sup> and F. Jelezko<sup>1,5</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, Ulm, Germany, <sup>2</sup>Institute for Theoretical Physics, Ulm University, Ulm, Germany,

<sup>3</sup>Department of Functional Surfaces, Leibniz Institute of Surface Engineering, Leipzig, Germany, <sup>4</sup>Pureon AG, 8574 Lengwil, Switzerland

<sup>5</sup>Centre for Integrated Quantum Science and Technology (IQST), Ulm, Germany

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**Electronic structure and charge state stability of the negatively charged nickel vacancy center in diamond**

I. Morris<sup>1</sup>, K. Klink<sup>1</sup>, L. Crooks<sup>1</sup>, L. Singh<sup>2</sup>, D. Hardeman<sup>3</sup>, O. Firstenberg<sup>2</sup>, S. S. Nicley<sup>1,4</sup>, E. Poem<sup>2</sup>, J. N. Becker<sup>1,4</sup>

<sup>1</sup>Quantum Optical Devices Laboratory, Michigan State University, 567 Wilson Rd, East Lansing, MI 48824, USA, <sup>2</sup>Physics of Complex

Systems, Weizmann Institute of Science, Rehovot 7610001, Israel, <sup>3</sup>Element Six Global Innovation Centre, Fermi Avenue, Harwell,

Didcot, OX11 0QR, UK, <sup>4</sup>Coatings and Diamond Technologies Division, Center Midwest (CMW), Fraunhofer USA Inc., 1449 Engineering

Research Ct., East Lansing, MI 48824, USA

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**Raman based crystallographic Orientation Mapping with qRICO: first Applications for Diamond Characterisation**

M. F. Heinig<sup>1</sup>, J. R. Bowen<sup>1</sup>, P. Reischig<sup>1</sup>, F. Bachmann<sup>1</sup>, L. Kirste<sup>2</sup>, V. Cimalla<sup>2</sup>, M. Prescher<sup>2</sup>

<sup>1</sup>Xnovo Technology ApS, Galoche Allé 15, 4600 Køge, Denmark, <sup>2</sup>Fraunhofer Institute for Applied Solid State Physics IAF, Tullastrasse

72, 79108 Freiburg, Germany

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**Comparison between different field plate architecture for diamond Schottky diodes**

H. Ribeiro<sup>1,2</sup>, M. Oujanba<sup>1,2</sup>, K. Driche<sup>1</sup>, J. Letellier<sup>1</sup>

<sup>1</sup>DIAMFAB, 25 avenue des Martyrs, 38042 Grenoble, France, <sup>2</sup>Univ. Grenoble Alpes, 38000 Grenoble, France

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**Formation of cyanobacteria biofilm on differently doped and terminated nanocrystalline diamond surfaces**

E. Ahmed<sup>1,2</sup>, R. Rouzbahani<sup>1,2</sup>, P. Pobedinskas<sup>1,2</sup>, B. Ruttens<sup>1,2</sup>, I. Coninx<sup>3</sup>, P. Janssen<sup>3</sup>, J. D'Haen<sup>1,2</sup>, K. Haenen<sup>1,2</sup>

<sup>1</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>2</sup>IMOMECA, IMEC vzw,

Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>3</sup>Institute for Environment Health and Safety (EHS), Belgian Nuclear Research Centre

(SCK CEN), Boeretang 200, 2400 Mol, Belgium

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**Pure and strain-relaxed polycrystalline diamond thin films using femtosecond laser irradiation**

L. Ondič<sup>1</sup>, J. Fait<sup>1</sup>, M. Varga<sup>1</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, 16200, Prague 6, Czech Republic

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**External quantum yield of silicon vacancy centers using integrating sphere**

T. Černá<sup>1</sup>, I. Bydžovská<sup>1</sup>, O. Babčenko<sup>1</sup>, L. Ondič<sup>1</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, 16200, Prague 6, Czech Republic

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**Glassy carbon powder modified with boron-doped carbon nanowalls using chemical vapor deposition**

M. Banasiak<sup>1</sup>, M. Ciešlik<sup>1,2</sup>, K. Formela<sup>1</sup>, N. Wójcik<sup>1</sup>, J. Ryl<sup>1</sup>, R. Bogdanowicz<sup>1</sup>

<sup>1</sup>Gdańsk University of Technology, 11/12G. Narutowicza St., 80-233 Gdańsk, Poland, <sup>2</sup>University of Gdańsk, 8 Bażyńskiego St., 80-309

Gdańsk

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**Characterization of intrinsic and nitrogen-doped diamond epilayers for wide-field magnetometry**

J. Bousquet<sup>1</sup>, M. Schepp<sup>2</sup>, R. D. Allert<sup>2</sup>, D. B. Bucher<sup>2</sup> and G. Jacopin<sup>3</sup>

<sup>1</sup>DIAMFAB, 25 rue des Martyrs 38042, Grenoble, France, <sup>2</sup>Technical University of Munich, Department of Chemistry, München,

Germany, <sup>3</sup>Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 25 rue des Martyrs 38042, Grenoble, France

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#### **Methane effect on N-P-co-doped NCD layers grown by MPCVD**

A. Freire de Rivas<sup>1</sup>, F. Lloret<sup>1</sup>, J. Millan-Barba<sup>2</sup>, G. Alba<sup>2,3</sup>, K.J. Sankaran<sup>4</sup>, K. Haenen<sup>5,6</sup>, M. Gutierrez<sup>2</sup>, D. Araujo<sup>2</sup>

<sup>1</sup>Department of Applied Physics, University of Cádiz, 11510 Puerto Real, Spain, <sup>2</sup>Department of Material Science, University of Cádiz, 11510 Puerto Real, Spain, <sup>3</sup>Department of Material Science, IMEYMAT, University of Cádiz, 11510 Puerto Real, Spain, <sup>4</sup>CSIR-Institute of Minerals and Materials Technology, BBSR, 751013, Odisha, India.

<sup>5</sup>Institute for Materials Research (IMO), Hasselt University, 3590 Diepenbeek, Belgium, <sup>6</sup>IMOMECE, IMEC vzw, Diepenbeek, Belgium

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#### **Focus Ion Beam (FIB)-Scanning Electron Microscopy (SEM) integrated nanofabrication of diamond electronic devices**

G. Alba<sup>1</sup>, J. Valendolf<sup>2</sup>, F. Lloret<sup>3</sup>, J.C. Piñero<sup>4</sup>, P. Villar<sup>2</sup>, D. Araujo<sup>2</sup>

<sup>1</sup>Institute for Research into Electronic Microscopy and Materials, Department of Material Science, University of Cadiz, Faculty of Science, 11510 Puerto Real, Spain, <sup>2</sup>Department of Material Science, University of Cadiz, Faculty of Science, 11510 Puerto Real, Spain, <sup>3</sup>Department of Applied Physics, University of Cadiz, CASEM, 11510 Puerto Real, Spain, <sup>4</sup>Department of Didactics of the Mathematics, University of Cadiz, Faculty of Education Sciences, 11510 Puerto Real, Spain

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#### **Influence of Pulsed Gas Flows and O<sub>2</sub> Addition on the Growth of Polycrystalline Phosphorus-Doped Diamond Layers**

N. Lambert<sup>1</sup>, Š. Havlová<sup>1</sup>, M. Novotný<sup>1</sup>, Z. Weiss<sup>1</sup>, K.-D. Sung<sup>1,\*</sup>, V. Mortet<sup>1,2,3</sup>

<sup>1</sup>FZU - Institute of Physics of the Czech Academy of Sciences, Na Slovance 1999/2, Prague, Czech Republic, <sup>2</sup>Faculty of Biomedical Engineering, Czech Technical University in Prague, Náměstí Sítná 3105, Kladno, Czech Republic, <sup>3</sup>Quantum Brilliance GmbH, Industriestraße 4, 70565 Stuttgart, Germany

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#### **Simulation of ODMR Spectra from Nitrogen Vacancy Ensembles for Electric Field Sensing**

Y. Zhu<sup>1</sup>, E. Losero<sup>2</sup>, C. Galland<sup>1</sup> and V. Goblot<sup>1</sup>

<sup>1</sup>Institute of Physics, Swiss Federal Institute of Technology, Rte Cantonale, 1015, Lausanne, Switzerland <sup>2</sup>Division of Quantum Metrology and Nanotechnologies, Istituto Nazionale di Ricerca, Str. delle Cacce, 10135 Torino TO, Italy

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#### **Diamond-optic enhanced photon collection efficiency for sensing with nitrogen-vacancy centers**

M. Omar<sup>1,2</sup>, A. Conta<sup>1</sup>, A. Westerhoff<sup>1</sup>, R. Hasse<sup>1</sup>, G. Chatzidrosos<sup>1,2</sup>, D. Budker<sup>1,2,3</sup> and A. Wickenbrock<sup>1,2</sup>

<sup>1</sup>Department of Physics, Mathematics and Computer Science, Johannes Gutenberg-University Mainz, Saarstraße 21, 55122 Mainz, <sup>2</sup>Helmholtz Institut Main, GSI Helmholtzzentrum für Schwerionenforschung, Staudingerweg 18, 55218 Mainz, <sup>3</sup>Department of Physics, University of California, Berkeley, 366 Physics North MC 7300 Berkeley, CA, 94720-7300, United States

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#### **<sup>13</sup>C Controlled Diamond Material for NV based Quantum Technologies**

C. Osterkamp<sup>1</sup>, J. Lang<sup>1</sup>, C. Findler<sup>1,2</sup>, M. Nesladek<sup>1,3</sup>, and F. Jelezko<sup>1,2</sup>

<sup>1</sup>Diatope GmbH, Buchenweg 23, D-88444 Ummendorf, Germany, <sup>2</sup>Institut für Quantenoptik, Ulm University, Albert-Einstein-Allee 11, Ulm, 89081, Germany <sup>3</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590 Diepenbeek, Belgium

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#### **Detecting nitrogen-vacancy-hydrogen centers on the nanoscale and their role in the passivation of nitrogen vacancy centers in CVD-diamond**

C. Findler<sup>1,2</sup>, J. Fuhrmann<sup>1</sup>, K. Schüle<sup>1</sup>, R. Blinder<sup>1</sup>, P. Balasubramanian<sup>1</sup>, J. Lang<sup>1,2</sup>, C. Osterkamp<sup>1,2</sup> and F. Jelezko<sup>1</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, D-89081 Ulm, Germany, <sup>2</sup>Diatope GmbH, Buchenweg 23, D-88444 Ummendorf, Germany

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#### **Modelling deposition uniformity in microwave plasma CVD diamond over 2" silicon wafers**

J. A. Cuenca, S. Mandal, W. G. S. Leigh, E. L. H. Thomas and O. A. Williams<sup>1</sup>

School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, Wales, UK

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#### **Simulation and Fabrication of 1D Photonic Crystal Cavities in Diamond**

S. Diotel<sup>1</sup>, M. Elshorbagy<sup>2</sup>, J. Heupel<sup>3</sup>, P. Siyushev<sup>1,4</sup>, R. Stöhr<sup>4</sup>, H. Omeran<sup>2</sup>, C. Popov<sup>3</sup>, J. Wrachtrup<sup>4</sup>, and F. Jelezko<sup>1</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany, <sup>2</sup>Laboratory of Micro Optics, Faculty of Information Engineering and Technology, German University in Cairo, Cairo, Egypt, <sup>3</sup>Institute of Nanostructure Technologies and Analytics (INA), Center of Interdisciplinary Nanostructure Science and Technology (CINSaT), University of Kassel, Heinrich-Plett-Straße 40, 34132 Kassel, Germany, <sup>4</sup>3rd Institute of Physics, University of Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart, Germany

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#### **Preferable cell uptake of microdiamonds and role of myosin motor proteins in particle uptake and transport**

A. Ebrahimi, Z. Rajfur, A. M. Wojciechowski

<sup>1</sup>M. Smoluchowski Institute of Physics, Jagiellonian University, Łojasiewicza 11, 30-348 Kraków, Poland

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J. A. Cuenca, J. Stritt, E. L. H. Thomas, S. Mandal and O. A. Williams

School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, Wales, UK

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#### **Nitrogen incorporation during CVD diamond growth for quantum technologies**

K. Schüle<sup>1</sup>, C. Findler<sup>1,2</sup>, C. Osterkamp<sup>1,2</sup>, R. Blinder<sup>1</sup>, P. Balasubramanian<sup>1</sup>, F. Jelezko<sup>1,3</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, D-89081 Ulm, Germany, <sup>2</sup>Diatope GmbH, Buchenweg 23, D-88444 Ummendorf, Germany, <sup>3</sup>Center for Integrated Quantum Science and Technology (IQ<sup>ST</sup>), Albert-Einstein-Allee 11, D-89081 Ulm, Germany

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B. Biesmans<sup>1</sup>, S.M. Tunhuma<sup>1</sup>, A. Shmakova<sup>2,3</sup>, M. Petrov<sup>2,3</sup>, M. Nesladek<sup>2,3</sup>, L.M.C. Pereira<sup>1</sup> and A. Vantomme<sup>1</sup>

<sup>1</sup>Department of Physics and Astronomy, Quantum Solid-State Physics, KU Leuven, 3001 Leuven, Belgium, <sup>2</sup>Institute for Materials Research (IMO), Hasselt University, 3590 Diepenbeek, Belgium, <sup>3</sup>IMOME division, IMEC, 3590 Diepenbeek, Belgium

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V. Djurberg<sup>1</sup>, S. Majdi<sup>1</sup>, K. Konishi<sup>2</sup>, I. Akimoto<sup>3</sup>, H. Matsuoka<sup>4</sup>, N. Naka<sup>2</sup>, J. Isberg<sup>1</sup>

<sup>1</sup>Division for Electricity, Department of Electrical Engineering, Uppsala University, Box 65, 751 03, Uppsala, Sweden, <sup>2</sup>Department of Physics, Kyoto University, Kitshirakawa-Oiwake-cho, Sakyo-ku, Kyoto 606-8502, Japan, <sup>3</sup>Department of Materials Science and Chemistry, Wakayama University, Sakaedani 930, Wakayama 640-8510, Japan, <sup>4</sup>Graduate School of Science, Osaka City University, Sugimoto 3-3-138, Sumiyoshi-ku, Osaka 558-8585, Japan

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I. V. Ponomarev<sup>1</sup>, T.P. Chow<sup>2</sup>

<sup>1</sup>Euclid Beamlabs, 10000 Virginia Manor Rd, Ste 330, Beltsville, MD, 20705, USA, <sup>2</sup>Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY 12180, USA

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#### **Role of concentration of hydrogen in the formation of diamond nanoparticles**

A. Siby<sup>1</sup>, S. Prasanna<sup>1</sup>, K. Hassouni<sup>1</sup>

<sup>1</sup>Laboratoire des Sciences des Procédés et des Matériaux (LSPM), CNRS, UPR 3407, Université Sorbonne Paris Nord, 99 avenue J.B. Clément, 93430 Villetaneuse, France

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M. Ficek<sup>1</sup>, S. Kunuku<sup>1</sup>, M. Mrózek<sup>2</sup>, R. Bogdanowicz<sup>1</sup>

<sup>1</sup>Gdańsk University of Technology, 11/12 Narutowicza St., 80-233 Gdansk, Poland, <sup>2</sup>Institute of Physics, Jagiellonian University in Krakow, 11 Łojasiewicza St., 30-348, Kraków, Poland

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N. Staudenmaier<sup>1</sup>, A. Vijayakumar-Sreeja<sup>1</sup>, G. Genov<sup>1</sup>, S. Dietel<sup>1</sup>, G. Wolff<sup>1</sup>, K. Spohn<sup>1</sup>, P. Vetter<sup>1</sup>, J. Scharpf<sup>2</sup>, T. Unden<sup>2</sup>, C. Findler<sup>1,3</sup>, J. Lang<sup>1,3</sup>, P. Neumann<sup>2</sup>, F. Jelezko<sup>1</sup>

<sup>1</sup>Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany, <sup>2</sup>NVision Imaging Technologies GmbH, Albert-Einstein-Allee 11, 89081 Ulm, Germany, <sup>3</sup>Diatope GmbH, Buchenweg 23, 88444 Ummendorf, Germany

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**Increased Nanodiamond facilitated drug delivery efficacy in three-dimensional co-cultured cancer models**

Y.-J. Su, C.-Y. Huang, C.-C. Chang, C.-L. Cheng

Department of Physics, National Dong Hwa University, 97410, Hualien, Taiwan

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**Microfluidic platform for quantum sensors in diamond**

R. D. Allert<sup>1</sup>, F. Bruckmaier<sup>1</sup>, N. R. Neuling<sup>1</sup>, F. A. Freire-Moschovitis<sup>1</sup>, K. S. Liu<sup>1</sup>, C. Schrepel<sup>2</sup>, P. Schätzle<sup>3</sup>, P. Knittel<sup>4</sup>, M. Hermans<sup>2</sup>, and D. B. Bucher<sup>1,5</sup>

<sup>1</sup>Department of Chemistry, School of Natural Sciences, Technical University of Munich, Lichtenbergstr. 4, 85748 Garching b. München, Germany, <sup>2</sup>LightFab GmbH, Talbotstr. 25, 52068 Aachen, Germany, <sup>3</sup>Department of Sustainable Systems Engineering (INATECH), University of Freiburg, Emmy-Noether-Str. 2, 79110 Freiburg, Germany, <sup>4</sup>Fraunhofer Institute for Applied Solid State Physics, Tullastr. 72, 79108 Freiburg, Germany, <sup>5</sup>Munich Center for Quantum Science and Technology (MCQST), Schellingstr. 4, 80799 München, Germany

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N. Sekiguchi<sup>1</sup>, M. Fushimi<sup>2</sup>, K.-I. Kajiyama<sup>1</sup>, A. Yoshimura<sup>1</sup>, R. Matsuki<sup>1</sup>, C. Shinei<sup>3</sup>, M. Miyakawa<sup>3</sup>, T. Taniguchi<sup>4</sup>, T. Teraji<sup>3</sup>, S. Onoda<sup>5</sup>, T. Ohshima<sup>5</sup>, M. Hatano<sup>1</sup>, M. Sekino<sup>2</sup> and T. Iwasaki<sup>1</sup>

<sup>1</sup>Department of Electrical and Electronics Engineering, Tokyo Institute of Technology, Tokyo 152-8552, Japan, <sup>2</sup>Department of Bioengineering, University of Tokyo, Tokyo 113-8656, Japan, <sup>3</sup>Research Center for Functional Materials, National Institute for Materials Science, Tsukuba 305-0044, Japan, <sup>4</sup>International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba 305-0044, Japan <sup>5</sup>Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology, Takasaki 370-1292, Japan

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**All-diamond scanning probes for high-performance and robust nanoscale magnetometry**

G. Seniutinas<sup>1</sup>, M. Gonzalez<sup>1</sup>, B. Shields<sup>2</sup>, F. Favaro de Oliveira<sup>1</sup>, P. Maletinsky<sup>2,1</sup>

<sup>1</sup>Qnami AG, Hofackerstrasse 40B, Muttenz, Switzerland, <sup>2</sup>Quantum Sensing Lab, University of Basel, Klingelbergstrasse 82, Basel, Switzerland

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**Extension of dephasing time of continuously excited ensemble NV centers towards highly sensitive and compact magnetic sensors**

I. Fujisaki<sup>1</sup>, Y. Araki<sup>1</sup>, Y. Hatano<sup>1</sup>, T. Sekiguchi<sup>1</sup>, H. Kato<sup>2</sup>, S. Onoda<sup>3</sup>, T. Ohshima<sup>3</sup>, T. Shibata<sup>4</sup>, T. Iwasaki<sup>1</sup>, M. Hatano<sup>1,3</sup>

<sup>1</sup>Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan, <sup>2</sup>National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan, <sup>3</sup>National Institutes for Quantum Science and Technology, Takasaki, Japan, <sup>4</sup>DENSO corporation, Nisshin, Japan

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**A pathway toward engineering diamond surfaces for scalable and resilient quantum computing at room temperature**

C. Weber<sup>1</sup>, W. M. Klesse<sup>2\*</sup>, L. Oberg<sup>1</sup>, H.-H. Yang<sup>2</sup>, M.W. Doherty<sup>1</sup>

<sup>1</sup>Quantum Brilliance Pty, The Australian National University, Gould Building (116), Daley Road Canberra ACT 2600, <sup>2</sup>Quantum Brilliance GmbH, Industriestraße 4, 70565 Stuttgart

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M.-A. Pinault-Thaury, M. Bouras, R. Gillet, F. Jomard, I. Stenger, J. Barjon

GEMaC-CNRS/UVSQ, Université Paris-Saclay, Versailles, France

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R. Mesples-Carrère, R. Issaoui, K. Castillo Arvizu, A. Valentin, O. Brinza, F. Bénédic and J. Achard

*Laboratoire des Sciences des Procédés et des Matériaux (CNRS UPR 3407), Université Sorbonne Paris Nord, 93430 Villetaneuse, France*

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**Growth of thick 1 cm<sup>2</sup> boron doped single crystal diamond**

R. Issaoui, K Axxel Arvizu Castillo, R. Mesples Carrere, O. Brinza, F. Bénédic and J. Achard

*Laboratoire des Sciences des Procédés et des Matériaux, LSPM-CNRS UPR 3407, Université Sorbonne Paris Nord, 93430 Villetaneuse, France*

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S. Stewart, E. Scorsone, M. Hamel

*Université Paris-Saclay, CEA, List, F-91120 Palaiseau, France*

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B. Carmans, A. Shukla, M. Petrov and M. Nesladek

*IMO-IMOMEC, Hasselt University, Wetenschapspark 1, Diepenbeek, België*

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**Barrier height requirements for leakage suppression in diamond power Schottky diodes to unleash the maximum performance**

J. Cañas<sup>1,2</sup>, D. Eon<sup>1</sup>

*<sup>1</sup>University Grenoble Alpes, CNRS, Grenoble INP, Institut Neel, 38000 Grenoble, France, <sup>2</sup>Dpto. Ciencia de los Materiales, Universidad de Cadiz, 11510 Puerto Real, Spain*

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T. Guo, X. Jiang, N. Yang

*Institute of Materials Engineering, University of Siegen, Paul-Bonatz-Straße 9-11, Siegen, Germany*

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**Diamond Thin Films for NV-based Quantum Sensing**

P. Knittel, P. Schätzle, N. Lang, N. Mathes, C. Giese, P. Quellmalz, X. Vidal

*Fraunhofer Institute for Applied Solid State Physics, Tullastraße 72, Freiburg, German*

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R. J. Moors<sup>1</sup>, M. Krueger<sup>2</sup>, A. C. Pakpour-Tabrizi<sup>1</sup>, J. O. Welch<sup>1</sup>, C. Henderson<sup>1</sup>, P. Salter<sup>2</sup> and R. B. Jackman<sup>1</sup>

*<sup>1</sup>London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, UCL (University College London), 17-19 Gordon Street, London, WC1H 0AH, UK, <sup>2</sup>Department of Engineering Science, University of Oxford, Parks Road, Oxford OX1 3PJ, UK*

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**Formation of Group-IV color centers in MPCVD-grown with solid-state and gaseous sources of impurity**

V. S. Sedov<sup>1</sup>, A. K. Martyanov<sup>1</sup>, A. M. Romshin<sup>1</sup>, M. Nesladek<sup>2</sup>, V. G. Ralchenko<sup>1</sup>

*<sup>1</sup>Prokhorov General Physics Institute of the Russian Academy of Sciences, Vavilov str. 38, Moscow 119991, Russia*

*<sup>2</sup>Universiteit Hasselt, Martelarenlaan 42, 3500 Hasselt, Belgium*

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**Engineered NV Diamond for Quantum Technologies**

J. Lang<sup>1</sup>, C. Osterkamp<sup>1</sup>, C. Findler<sup>1,2</sup>, M. Nesladek<sup>1,3</sup>, and F. Jelezko<sup>1,2</sup>

*<sup>1</sup>Diatope GmbH, Buchenweg 23, D-88444 Ummendorf, Germany, <sup>2</sup>Institut für Quantenoptik, Ulm University, Albert-Einstein-Allee 11, Ulm, 89081, Germany, <sup>3</sup>Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590 Diepenbeek, Belgium*

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C. Zhang<sup>1,2</sup>, N. Huang<sup>1</sup>, Z. Zhai<sup>1</sup>, B. Chen<sup>1,3</sup>, L. Liu<sup>1</sup>, B. Yang<sup>1,3</sup>, N. Yang<sup>2</sup>, X. Jiang<sup>2</sup>

<sup>1</sup>Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, No.72 Wenhua Road, Shenyang 110016, China, <sup>2</sup>Institute of Materials Engineering, University of Siegen, No.9-11 Paul-Bonatz-Str., Siegen 57076, Germany <sup>3</sup>School of Materials Science and Engineering, University of Science and Technology of China, No.72 Wenhua Road, Shenyang 110016, China

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**Bulge test of compressively stressed diamond membranes**

P. Pobedinskas and K. Haenen

Institute for Materials Research, Hasselt University, Wetenschapspark 1, 3590 Diepenbeek, Belgium, IMOMECE, IMEC vzw, Wetenschapspark 1, 3590 Diepenbeek, Belgium

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**X-rays in diamond photonics: a new way to control charge states of color centers**

K. N. Boldyrev<sup>1,2</sup>, E. S. Sektarov<sup>1,2</sup>, V. S. Sedov<sup>3</sup>

<sup>1</sup>Institute of spectroscopy, Russian Academy of Sciences, Fizicheskaya 5, Troitsk, Moscow, Russia, <sup>2</sup>Department of Physics, National Research University Higher School of Economics, Myasnitskaya 20, Moscow, Russia, <sup>3</sup>Prokhorov General Physics Institute, Russian Academy of Sciences, Vavilov 38, Moscow, Russia

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B. P. Reed,<sup>1,2,3</sup> M. E. Bathen,<sup>4</sup> J. W. R. Ash,<sup>1,2</sup> C. J. Meara,<sup>2,6</sup> A. A. Zakharov,<sup>7</sup> J. P. Goss,<sup>6</sup> J. W. Wells,<sup>5</sup> D. A. Evans,<sup>1</sup> and S. P. Cooil<sup>1,5</sup>

<sup>1</sup>Department of Physics, Aberystwyth University, UK, <sup>2</sup>CDT in Diamond Science and Technology University of Warwick, UK, <sup>3</sup>National Physical Laboratory, Teddington, UK, <sup>4</sup>Advanced Power Semiconductor Laboratory, ETH Zurich, Switzerland, <sup>5</sup>Centre for Materials Science and Nanotechnology, University of Oslo, Norway, <sup>6</sup>School of Electrical and Electronic Engineering, Newcastle University, UK, <sup>7</sup>Max IV Laboratory, Lund University, Sweden

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T. Lühmann, J. Adamczewski, S. Pezzagna and J. Meijer

Department of Nuclear Solid State Physics, Felix Bloch Institute for Solid State Physics, Universität Leipzig

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N. Mathes<sup>1</sup>, K. Everaert<sup>2,3</sup>, R. Bleul<sup>4</sup>, R. Sperling<sup>4</sup>, J. Leliaert<sup>3</sup>, P. Knittel<sup>1</sup>, F. Wiekhorst<sup>2</sup>, X. Vidal<sup>1</sup>

<sup>1</sup>Fraunhofer Institute for Applied Solid State Physics IAF, Tullastraße 72, Freiburg, Germany, <sup>2</sup>Physikalisch-Technische Bundesanstalt, Abbestraße 2-12, Berlin, Germany, <sup>3</sup>Department of Solid State Sciences, Ghent University, Krijgslaan 281/S1, Ghent, Belgium, <sup>4</sup>Fraunhofer Institute for Microengineering and Microsystems IMM, Carl-Zeiss-Str. 18-20, Mainz, Germany

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D. E.P. Vanpoucke

Institute for Materials Research (IMO), Hasselt University & IMOMECE, IMEC vzw, Diepenbeek, Belgium

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**Low-Temperature Diamond Development for Thermal Management**

M. Malakoutian<sup>1</sup>, K. Woo<sup>1</sup>, A. Kasperovich<sup>1</sup>, R. Soman<sup>1</sup>, S. Chowdhury<sup>1</sup>

<sup>1</sup>Electrical Engineering Department, Stanford University, Stanford, CA, USA

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**Properties of epitaxial boron-doped diamond for atomic scale fabrication of NV center qubits**

V. Mortet<sup>1</sup>, Y. Busby<sup>1</sup>, P. Reinke<sup>1</sup>, M. Alam<sup>2</sup>, P. Straňák<sup>3</sup>, L. Kirste<sup>3</sup>, K.-D. Sung<sup>2</sup>, A. Taylor<sup>2</sup>, M.A. Pinault-Thaury<sup>3</sup>, W. M. Klesse<sup>1</sup>

<sup>1</sup>Quantum Brilliance GmbH, Industriestraße 4, 70565 Stuttgart, Germany, <sup>2</sup>FZU - Institute of Physics CAS, Na Slovance 1999/2, 182 00 Praha 8, Czech Republic, <sup>3</sup>Fraunhofer Institute for Applied Solid State Physics, Tullastraße 72, 79108 Freiburg im Breisgau, Germany, <sup>4</sup>GEMaC, 45 avenue des États-Unis, 78035 Versailles cedex, France

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**Scalable Fabrication of Diamond Photonic integrated Devices**

C. Giese, P. Quellmalz, P. Knittel, Q. Yang, P. Reinke and L. Tingpeng

*Fraunhofer-Institute for Applied Solid State Physics (IAF), Tullastr. 72, 79108 Freiburg, Germany*

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**A novel fabrication process for luminescent, hybrid diamond / 2D material photonic nanostructures**

O. R. Opaluch<sup>1</sup>, R. Nelz<sup>1</sup>, N. Oshnik<sup>1</sup>, L. Mehmel<sup>2</sup>, S. Shradha<sup>3</sup>, Z. Gan<sup>4</sup>, E. Najafidehaghani<sup>4</sup>, A. George<sup>4</sup>, A. Turchanin<sup>4</sup>, F. Eilenberger<sup>3,5</sup>, E. Neu<sup>1</sup>

<sup>1</sup>Department of Physics, University of Kaiserslautern-Landau, Erwin-Schrödinger-Straße, 67663 Kaiserslautern, Germany, <sup>2</sup>Sairem, 82 rue Elisée Reclus, Décines-Charpieu, France, <sup>3</sup>Institute of Applied Physics, Abbe Center of Photonics, Friedrich Schiller University of Jena, AlbertEinstein-Straße 15, 07745 Jena, Germany, <sup>4</sup>Institute of Physical Chemistry, Friedrich Schiller University of Jena, Helmholtzweg 4, 07743 Jena, Germany, <sup>5</sup>Fraunhofer-Institute for Applied Optics and Precision Engineering IOF, Albert-Einstein-Str. 7, 07745 Jena, Germany

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**Surface Transfer Doped Diamond Diodes with Metal Oxide Passivation and field-plate**

R. J. Watkins, C. S. Henderson, A. C. Pakpour-Tabrizi, and R. B. Jackman

*London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, UCL (University College London), 17-19 Gordon Street, London, WC1H 0AH, UK*

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**Elastic properties and residual stress in linear antenna CVD nanocrystalline diamond films**

R. Mary Joy<sup>1,2</sup>, P. Pobedinskas<sup>1,2</sup>, N. Baule<sup>3</sup>, S. Bai<sup>4</sup>, K. J. Sankaran<sup>1,2,\*,</sup> R. Rouzbahani<sup>1,2</sup>, F. Lloret<sup>1,2,+</sup>, J. D'Haen<sup>1,2</sup>, F. Jomard<sup>5</sup>, M.-A. Pinault-Thaury<sup>5</sup>, M. F. Becker<sup>3</sup>, K. Haenen<sup>1,2</sup>

<sup>1</sup>Institute for Materials Research, Hasselt University, Diepenbeek, Belgium, <sup>2</sup>IMOMECE, IMEC vzw, Hasselt University, Diepenbeek, Belgium, <sup>3</sup>Fraunhofer USA, Inc., Center Midwest, East Lansing, MI, USA, <sup>4</sup>Dept. Chemical Engineering and Materials Science, Michigan State University, MI, USA, <sup>5</sup>GEMaC-UMR8635, CNRS, UVSQ, Université Paris-Saclay, Versailles Cedex, France, <sup>\*</sup>Currently at: CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, India, <sup>+</sup>Currently at: Dept. Applied Physics, Universidad de Cádiz, Puerto Real (Cádiz), Spain

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**In-situ reactor annealing of CVD diamonds**

U. F.S. D'Haenens-Johansson and M. C. Jollands

*Gemological Institute of America, 50 W. 47th St., New York, NY 10036, USA*

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**Defect Engineering in Nanodiamonds towards Long-term Data Storage**

C. Laube<sup>1,2</sup>, R. Temme<sup>1,2</sup>, A. Prager<sup>1</sup>, J. Griebel<sup>1</sup>, W. Knolle<sup>1</sup>, and B. Abel<sup>1,2</sup>

<sup>1</sup>Leibniz-Institute of Surface Engineering (IOM), Permoserstraße 15, 04318 Leipzig, Germany, <sup>2</sup>Institute of Chemical Technology, University Leipzig, Linnéstrasse 3, 04103 Leipzig, Germany

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**Detecting spatial magnetic field gradients using a nanodiamond thin-film sensor on an optical fiber facet**

M. Jani, M. Czarnecka, Z. Orzechowska, M. Mrózek, W. Gawlik, and A. M. Wojciechowski

*Institute of Physics, Jagiellonian University, Łojasiewicza, 11, 30-348 Kraków, Poland*

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**Precisely placed CVD-grown NV centres in optical resonators using inductively coupled plasma etching**

N. Lang, N. Mathes, C. Giese, P. Quellmalz, X. Vidal, P. Knittel

*Fraunhofer Institute for Applied Solid State Physics, Tullastraße 72, Freiburg, Germany*

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**T<sub>2</sub>\* lifetime and preferred orientation of NV centres in heteroepitaxial 2'' diamond wafers for quantum applications**

J. Engels, J. Weippert, L. Lindner, T. Luo, J. Kustermann, P. Quellmalz, C. Giese, J. Jeske, P. Knittel, L. Kirste, V. Lebedev

*Fraunhofer Institut für Festkörperphysik, Tullastraße 72, 79108 Freiburg, Germany*



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**Dual beam NIR photocurrent spectroscopy: revelation of new NIR defects in electronic quality type IIa single crystal diamond**

Z. Remes<sup>1,2</sup>, R. Vandebosh<sup>1</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, B-3590 Diepenbeek, Belgium, <sup>2</sup>FZU - Institute of Physics of the Czech Academy of Sciences, Na Slovance 1999/2, Prague, Czechia, <sup>3</sup>IMOMECA division, IMEC, Wetenschapspark 1, B-3590 Diepenbeek, Belgium

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**A fiber-coupled scanning magnetometer with nitrogen-vacancy centers in diamond nanobeams**

Y. Li<sup>1,2</sup>, F. Gerritsma<sup>1</sup>, S. Kurdi<sup>1</sup>, N. Codreanu<sup>1,3</sup>, T. Bredewoud<sup>1</sup>, R. Norte<sup>1,2</sup>, T. van der Sar<sup>1</sup>

<sup>1</sup>Department of Quantum Nanoscience, Kavli Institute of Nanoscience, Delft University of Technology, Delft, The Netherlands, <sup>2</sup>Department of Precision and Microsystems Engineering, Faculty of Mechanical, Maritime and Materials Engineering, Delft University of Technology, Delft, The Netherlands, <sup>3</sup>QuTech and Kavli Institute of Nanoscience, Delft University of Technology, Delft, The Netherlands

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**Polarization transfer to external nuclear spins using nitrogen-vacancy centers in diamond and surface electron reporter spins**

E. Torrontegui<sup>1</sup>, C. Munuera-Javaloy<sup>2</sup>, J. Casanova<sup>2</sup>, I. Panadero<sup>3</sup>, H. Espinós<sup>1</sup>

<sup>1</sup>Department of Physics, Carlos III University of Madrid, Avda. de la Universidad 30, 28911 Leganés, Spain, <sup>2</sup>Department of Physical Chemistry, University of the Basque Country UPV/EHU, Apartado 644, 48080 Bilbao, Spain, <sup>3</sup>Arquimea Research Center, Camino las Mantecas s/n, 38320 Santa Cruz de Tenerife, Spain.

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**A Rapid, Laboratory-Scale Approach to the Direct Measurement of the Anodic Corrosion of Boron Doped Diamond Electrodes**

J. J. Tully<sup>1</sup>, T. P. Mollart<sup>2</sup>, J. V. Macpherson<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Warwick, Gibbet Hill Road, Coventry, CV4 7AL, <sup>2</sup>Element Six Limited, Didcot, UK

5.114

**Electronic characterization of diamond thin films grown on heteroepitaxial diamond substrates for high power electronic application**

B. Truffet<sup>1</sup>, M. Pomorski<sup>1</sup>, C. Laviron<sup>2</sup>, L. Buffle<sup>3</sup>, F. Voiron<sup>3</sup>

<sup>1</sup>Université Paris-Saclay, CEA, LIST, F-91122, Palaiseau, France, <sup>2</sup>CEA, LETI, Grenoble, France, <sup>3</sup>Murata, Grenoble, France

5.115

**Thick CVD diamond heat sinks for GaN-based heterostructures: A new fabrication approach towards efficient electronic devices**

V. S. Sedov<sup>1,2</sup>, A. K. Martyanov<sup>1</sup>, A. G. Sinogeykin<sup>2</sup>, V. I. Konov<sup>1</sup>

<sup>1</sup>Prokhorov General Physics Institute of the Russian Academy of Sciences, Vavilov str. 38, Moscow 119991, Russia <sup>2</sup>Wonder Technologies LLC, Vavilov str. 38, Moscow 119991, Russia

5.116

**Miniaturized nanodiamond-functionalized optical fiber sensor for dual-mode protein detection**

M. Janik<sup>1,2</sup>, T. Gabler<sup>2</sup>, M. Ficek<sup>1</sup>, M. Sawczak<sup>3</sup>, M. Śmietana<sup>2</sup>, R. Bogdanowicz<sup>1</sup>

<sup>1</sup>Department of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdańsk University of Technology, 11/12 Gabriela Narutowicza St., 80-233 Gdańsk, Poland, <sup>2</sup>Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, Koszykowa 75, 00-662 Warsaw, Poland, <sup>3</sup>The Centre for Plasma and Laser Engineering, The Szewalski Institute of Fluid-Flow Machinery, Polish Academy of Sciences, 14 Fiszerka St., 80-231 Gdańsk, Poland

5.117

**Diamond-based detector for high-intensity pulsed beam monitoring: a tool for Flash irradiations and beam diagnostics**

R. Molle<sup>1</sup>, M-L. Gallin-Martel<sup>1</sup>, C. Koumeir<sup>3</sup>, D. Dauvergne<sup>1</sup>, P. Everaere<sup>1</sup>, L. Gallin-Martel<sup>1</sup>, A. Guertin<sup>2</sup>, F. Haddad<sup>3</sup>, C. Hoarau<sup>1</sup>, F. Lafont<sup>4</sup>, V. Metivier<sup>2</sup>, J-F Muraz<sup>1</sup>, F. Poirier<sup>3</sup>, F. Rarbi<sup>1</sup>, N. Servagent<sup>2</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. Nantes, SUBATECH, 4 rue Alfred Kastler, 44 307 Nantes Cedex 3, France <sup>3</sup>ARRONAX, 1 rue Aronnax, 44800 Saint Herblain, France, <sup>4</sup>European Synchrotron Radiation Facility, 71 avenue des Martyrs, 38000 Grenoble, France

5.118

#### **Structural formation yield of GeV centers from implanted Ge in diamond**

U. Wahl<sup>1</sup>, J. Guilherme Correia<sup>1</sup>, Â. Costa<sup>2</sup>, A. Lamelas<sup>3</sup>, V. Amaral<sup>3</sup>, K. Johnston<sup>4</sup>, G. Magchiels<sup>3</sup>, S. Malven Tunhuma<sup>2</sup>, L. Pereira<sup>2</sup>, A. Vantomme<sup>2</sup>

<sup>1</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, Portugal, <sup>2</sup>KU Leuven, Quantum Solid-State Physics, 3001 Leuven, Belgium, <sup>3</sup>CICECO- Instituto de Materiais de Aveiro, Universidade de Aveiro, 3810-193 Aveiro, Portugal, <sup>4</sup>CERN-EP, 1211 Geneva 23, Switzerland

5.119

#### **The influence of O<sub>2</sub>, CF<sub>4</sub> plasma and UV-ozone modification on the droplet-based nanodiamond seeding**

P. Verding<sup>1,2</sup>, D. Reenaerts<sup>1,2</sup>, R. Shanivarasanthe Nithyananda Kumar<sup>1,2</sup>, R. Mary Joy<sup>1,2</sup>, E. Ahmed<sup>1,2</sup>, E. Jeunen<sup>1</sup>, S. Thomas<sup>1</sup>, P. Pobedinskas<sup>1,2</sup>, K. Haenen<sup>1,2</sup>, W. Deferme<sup>1,2</sup>

<sup>1</sup>Hasselt University, Institute for Materials Research (IMO), Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>2</sup>IMEC vzw, IMOMECE, Wetenschapspark 1, 3590 Diepenbeek, Belgium

5.120

#### **Tin and Lithium based surface functionalisation of diamond for low work function device application**

S. Ullah<sup>1</sup>, N. Fox<sup>2</sup>

<sup>1</sup>Bristol Centre for Functional Nanomaterials, University of Bristol, Tyndall Ave, Bristol BS8 1TL, UK, <sup>2</sup>School of Physics, University of Bristol, Tyndall Ave, Bristol BS8 1TL, UK

5.121

#### **A novel direct current chemical vapor deposition (DC-CVD) reactor for large area diamond deposition**

B. Lawrence<sup>1</sup>, M. R. Linford<sup>1</sup>, A. J. Lizarbe<sup>1</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT 84602, USA

5.122

#### **Investigation of diamond-based quantum sensors in laterally overgrown hole arrays**

N. Oshnik<sup>1</sup>, S. Westrich<sup>1</sup>, L. Mehmel<sup>1,2,3</sup>, R. Issaoui<sup>2</sup>, A. Tallaie<sup>2</sup>, O. Brinza<sup>2</sup>, J. Achard<sup>2</sup>, and E. Neu-Ruffing<sup>1</sup>

<sup>1</sup>Rheinland-Pfälzische Technische Universität, Erwin-Schrödinger-Strasse, Kaiserslautern, Germany, <sup>2</sup>Laboratoire des Sciences des Procédés et des Matériaux – LSPM - CNRS, Université Sorbonne Paris Nord, Villetaneuse, France, <sup>3</sup>Sairem, 82 rue Elisée Reclus, Décines-Charpieu, France

5.123

#### **High resolution 3D hyperspectral imaging of diamond**

D. C Jones<sup>1</sup>, A. B. Muchnikov<sup>1,2</sup>

<sup>1</sup>Gemological Institute of America, Secaucus, New Jersey, USA, <sup>2</sup>TAE Technologies, California, USA

5.124

#### **Characterization of diamond and silicon carbide detectors with fission fragments**

M. L. Gallin-Martel<sup>1</sup>, Y. H. Kim<sup>2</sup>, L. Abbassi<sup>3</sup>, A. Bes<sup>1</sup>, C. Boiano<sup>4</sup>, S. Brambilla<sup>4</sup>, J. Collot<sup>1</sup>, G. Colombi<sup>2,4</sup>, T. Crozes<sup>3</sup>, S. Curtoni<sup>1</sup>, D. Dauvergne<sup>1</sup>, C. Destouches<sup>5</sup>, F. Donatini<sup>3</sup>, L. Gallin-Martel<sup>1</sup>, O. Ghouini<sup>1</sup>, J. Y. Hostachy<sup>1</sup>, Ł. W. Iskra<sup>4,6</sup>, M. Jastrzab<sup>6</sup>, G. Kessedjian<sup>1</sup>, U. Köster<sup>2</sup>, A. Lacoste<sup>1</sup>, A. Lyoussi<sup>5</sup>, S. Marcatili<sup>1</sup>, J. F. Motte<sup>3</sup>, J. F. Muraz<sup>1</sup>, T. Nowak<sup>6</sup>, L. Ottaviani<sup>7</sup>, J. Pernot<sup>3</sup>, A. Portier<sup>1</sup>, W. Rahajandraibe<sup>7</sup>, M. Ramdhane<sup>1</sup>, M. Rydygier<sup>6</sup>, C. Sage<sup>1</sup>, A. Tchoualack<sup>7</sup>, L. Tribouilloy<sup>1</sup>, M. Yamouni<sup>1</sup>

<sup>1</sup>Université Grenoble Alpes, CNRS, Grenoble INP, LPSC-IN2P3 UMR 5821, 38000 Grenoble, France, <sup>2</sup>Institut Laue Langevin, 38042 Grenoble, France, <sup>3</sup>Université Grenoble-Alpes, CNRS, Institut Néel, UPR2940, 38000 Grenoble, France, <sup>4</sup>INFN sezione di Milano via Celoria 16, 20133 Milano, Italy, <sup>5</sup>CEA/DES/IRENE/DER, Section of Experimental Physics, Safety Tests and Instrumentation, Cadarache, F-13108, Saint Paul-lez-Durance, France, <sup>6</sup>Institute of Nuclear Physics, Polish Academy of Sciences, 31-342 Kraków, Poland, <sup>7</sup>IM2NP (UMR CNRS 7334), Université Aix-Marseille, France

5.125

#### **Investigation of nucleation, migration and etching mechanisms on (100)-(2×1):H diamond surfaces by means of first-principle calculations**

E. Y. Guillaume<sup>1,2,3</sup>, D. E. P. Vanpoucke<sup>1,2</sup>, L. Henrard<sup>3</sup>, K. Haenen<sup>1,2</sup>

<sup>1</sup>Instituut voor materiaalonderzoek, Universiteit Hasselt, Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>2</sup>IMOMECE, IMEC vzw, Wetenschapspark 1, 3590 Diepenbeek, Belgium, <sup>3</sup>Namur Institute of Structured Matter (NISM), University of Namur, Rue de Bruxelles 61, 5000 Namur, Belgium

5.126

**Bonding, retention and thermal stability of shallow nitrogen in diamond (100) by low energy nitrogen implantation**

M. K. Kuntumalla, and A. Hoffman

*Schulich Faculty of Chemistry, Technion – Israel Institute of Technology, Haifa 32000, Israel*

5.127

**Oxygen influence on hBN nanowalls synthesis**

G. Krishnamurthy<sup>1,2</sup>, P. Pobedinskas<sup>1,2</sup>, R. Rouzbahani<sup>1,2</sup>, J. D'Haen<sup>1,2</sup>, A. Hardy<sup>1,2,3</sup>, K. Haenen<sup>1,2</sup>

<sup>1</sup>*Institute for Materials Research (IMO), Hasselt University, Diepenbeek, Belgium*, <sup>2</sup>*IMOMECE, IMEC vzw, Diepenbeek, Belgium*,

<sup>3</sup>*Energyville, Genk, Belgium*

5.128

**Characterization of electronic properties of diamond-based detectors with the X-ray Beam Induced Current method**

F. Lafont<sup>1</sup>, M.L. Gallin-Martel<sup>2</sup>, D. Dauvergne<sup>2</sup>, P. Everaere<sup>2</sup>, R. Molle<sup>2</sup>, J. Baruchel<sup>1</sup>, T.N. Tran Caliste<sup>1</sup>

<sup>1</sup>*European Synchrotron Radiation Facility, 71 avenue des Martyrs, 38000 Grenoble, France*, <sup>2</sup>*Laboratoire de Physique Subatomique et Cosmologie, 53 avenue des Martyrs, 38000 Grenoble, France*

5.129

**Fabrication of "Sawfish" vs "hole"-based photonic crystal cavities: a comparative investigation**

M. E. Stucki<sup>1,2</sup>, T. Pregolato<sup>1,2</sup>, J. M. Bopp<sup>1,2</sup>, M. van der Hoeven<sup>2</sup>, T. Schröder<sup>1,2</sup>

<sup>1</sup>*Ferdinand-Braun-Institute gGmbH, Gustav-Kirchhoff-Str. 4, Berlin, Germany* <sup>2</sup>*Department of Physics, Humboldt University of Berlin, Newtonstr. 15, Berlin, Germany*

5.130

**Reducing surface noise experienced by shallow NV color centers in diamond using oxygen plasma surface treatment**

J. Fuhrmann<sup>1</sup>, J. Lang<sup>1,2</sup>, J. Scharpf<sup>3</sup>, T. Uden<sup>3</sup>, J. Bansmann<sup>4</sup>, T. Bernhardt<sup>4</sup>, P. Neumann<sup>3</sup> and F. Jelezko<sup>1,5</sup>

<sup>1</sup>*Institute for Quantum Optics, Ulm University, Albert -Einstein-Allee 11, Ulm 89081, Germany*, <sup>2</sup>*Diatope GmbH, Buchenweg 23, Ummendorf 88444, Germany*, <sup>3</sup>*NVision Imaging Technologies GmbH, Albert -Einstein-Allee 11, Ulm 89081, Germany*, <sup>4</sup>*Institute for Surface Chemistry and Catalysis, Ulm University, Albert -Einstein-Allee 11, Ulm 89081, Germany*, <sup>5</sup>*Integrated Quantum Science and Technology (IQST), Ulm University, Albert -Einstein-Allee 11, Ulm 89081, Germany*

5.131

**Threshold voltage shift of deep-depletion ZrO<sub>2</sub>/O-terminated diamond MOSFET: numerical simulations and comparison with measurements**

M. Couret<sup>1</sup>, B. Soto<sup>2,3</sup>, D. Araujo<sup>2</sup>, M. Pilar Villar<sup>2</sup>, J. Pernot<sup>3</sup>, N. Rouger<sup>1</sup>

<sup>1</sup>*Université de Toulouse, LAPLACE, CNRS, UPS, INPT, F-31071 Toulouse, France*, <sup>2</sup>*Dpt Ciencia de los Materiales e IM y QI, Universidad de Cádiz, 11510, Pto. Real, Cádiz, Spain*, <sup>3</sup>*Université Grenoble Alpes, Grenoble INP, Institut Néel, 38000, Grenoble, France*

5.132

**Graphitization threshold and centers formation study upon ion implantation on a hot diamond substrate**

E. Nieto Hernández<sup>1,2</sup>, G. Andrini<sup>4,2</sup>, A. Crnjak<sup>5</sup>, M. Brajkovic<sup>5</sup>, F. Picariello<sup>3</sup>, E. Corte<sup>1,2</sup>, V. Pugliese<sup>1,2</sup>, J. Forneris<sup>1,3</sup>, M. Genovese<sup>3</sup>, Z. Siketic<sup>5</sup>, M. Jaksic<sup>5</sup>, S. Ditalia Tchernij<sup>1,3</sup>

<sup>1</sup>*Department of Physics, University of Torino, 10125 Torino, Italy*, <sup>2</sup>*Istituto Nazionale di Fisica Nucleare (INFN), sezione di Torino, 10125, Torino, Italy*, <sup>3</sup>*Istituto Nazionale di Ricerca Metrologica (INRiM) 10135 Torino, Italy*, <sup>4</sup>*Department of Electronics and Communications, Politecnico di Torino, 10129 Torino, Italy*, <sup>5</sup>*Laboratory for Ion Beam Interactions, Ruđer Bosković Institute, Zagreb, Croatia*

5.133

**Gas-phase nucleation of nano-diamonds using a microwave micro-plasma torch**

S. Prasanna, A. Siby, O. Brinza, K. Hassouni

*Laboratoire des Sciences des Procédés et des Matériaux (LSPM), CNRS, UPR 3407, Université Sorbonne Paris Nord, 99 avenue J.B. Clément, 93430 Villetaneuse, France*

5.134

**Nanofabrication protocols for suspended "Sawfish" photonic crystal cavities in diamond**

T. Pregolato<sup>1,2</sup>, M. Stucki<sup>1,2</sup>, J. M. Bopp<sup>1,2</sup>, M. van der Hoeven<sup>2</sup>, T. Schröder<sup>1,2</sup>

<sup>1</sup>*Ferdinand-Braun-Institut gGmbH, Gustav-Kirchhoff-Str. 4, 12489 Berlin, Germany*, <sup>2</sup>*Department of Physics, Humboldt-Universität zu Berlin, Newtonstr. 15, Berlin, Germany*

5.135

**Photon counting statistics in nitrogen vacancy centres**

I. Panadero<sup>1,3</sup>, H. Espinós<sup>2</sup>, A. Tobalina<sup>1</sup>, R. Puebla<sup>2</sup>, E. Torrontegui<sup>1</sup>

<sup>1</sup>Arquimea Research Center, Camino las Mantecas s/n, 38320 Santa Cruz de Tenerife, Spain, <sup>2</sup>Departamento de Física, Universidad Carlos III de Madrid, Avda. de la Universidad 30, 28911 Leganés, Spain, <sup>3</sup>Department of Physical Chemistry, University of the Basque Country UPV/EHU, Apartado 644, 48080 Bilbao, Spain

5.136

**A beam monitor detector based on diamond technology for the hadrontherapy**

P. Everaere<sup>1</sup>, D. Dauvergne<sup>1</sup>, ML Gallin-Martel<sup>1</sup>, JM Letang<sup>2</sup>, E. Testa<sup>3</sup>

<sup>1</sup>Université Grenoble Alpes, CNRS, Grenoble INP, LPSC-IN2P3 UMR 5821, 38000 Grenoble, France <sup>2</sup>Univ Lyon, INSA-Lyon, Université Claude Bernard Lyon 1, UJM-Saint Etienne, CNRS, Inserm, CREATIS UMR 5220, U1206, F-69373, Lyon, France, <sup>3</sup>Université de Lyon, CNRS, IP2I-IN2P3 UMR 5822, 69000 Lyon, France

5.137

**A pilot study of a single diamond gammadeltaic cell exposed to 1,350 Gy/h air KERMA of Cs-137 gamma rays for 3.5 wk**

G. Robson Mackenzie<sup>1</sup>, C. Hutson<sup>1</sup>, N. A. Fox<sup>2</sup>, T. B. Scott<sup>1</sup>

<sup>1</sup>Interface Analysis Centre, School of Physics, University of Bristol, Tyndall Avenue, Bristol, UK, <sup>2</sup>School of Chemistry, University of Bristol, Cantock's Close, Bristol, UK, and School of Physics

5.138

**Locally Ion Implantation and Annealing Effects in Diamond**

M. Bouras<sup>1</sup>, R. Gourad<sup>2</sup>, K. Isoird<sup>2</sup>, F. Cristiano<sup>2</sup>, J. Tasselli<sup>2</sup>, G. Grosset<sup>3</sup>, Y. Spiegel<sup>3</sup>, R. Gillet<sup>1</sup>, F. Jomard<sup>1</sup>, E. Chikoidze<sup>1</sup>, M.-A. Pinault-Thaury<sup>1</sup>

<sup>1</sup>GEMaC-CNRS/UVSQ, Université Paris-Saclay, Versailles, France, <sup>2</sup>LAAS-CNRS, Université de Toulouse, CNRS, UPS, Toulouse, France, <sup>3</sup>Ion Beam Service, ZI Peynier Rousset, rue Gaston Imbert, Peynier, France

5.139

**Experimental diagnostics and modelling of a distributed antenna array microwave plasma used for low-temperature/large-area nanocrystalline diamond film deposition**

C. Mahi, D. Dekkar, S. Prasanna, A. Michau, K. Hassouni, F. Bénédic

Université Sorbonne Paris Nord, LSPM, CNRS, UPR 3407, Villetaneuse, France

5.140

**Diamond sensor ageing in ambient conditions**

M.-M. Rantanen<sup>1</sup>, P. Koponen<sup>1</sup>, T. Naaranoja<sup>2</sup>, K. Österberg<sup>1,2</sup>

<sup>1</sup>Helsinki Institute of Physics, University of Helsinki, Gustaf Hällströmin katu 2, Helsinki, Finland, <sup>2</sup>Department of Physics, University of Helsinki, Gustaf Hällströmin katu 2, Helsinki, Finland

5.141

**Design of a Low Noise Amplifier for Nanosecond Pulses**

C. Hoarau<sup>1</sup>, A. André<sup>1</sup>, J.-L. Bouly<sup>1</sup>, D. Dauvergne<sup>1</sup>, P. Everaere<sup>1</sup>, M.-L. Gallin-Martel<sup>1</sup>, S. Marcatili<sup>1</sup>, R. Molle<sup>1</sup>, J.-F. Muraz<sup>1</sup>, A. Portier<sup>1</sup>, and G. Tripodo<sup>2</sup>

<sup>1</sup>Université Grenoble Alpes, Laboratoire de Physique Subatomique et Cosmologie — CNRS, 53 av. des Martyrs, 8000 Grenoble, France, <sup>2</sup>Dipartimento di Fisica e Chimica "E. Segrè", Università degli Studi di Palermo, via delle Scienze, 90128 Palermo, Italy.

5.142

**Potentialities of nanocrystalline diamond films produced in distributed antenna array microwave system for optical and biomedical applications**

C. Mahi<sup>1</sup>, A. V. Omeran<sup>1</sup>, O. Brinza<sup>1</sup>, R. Issaoui<sup>1</sup>, C. Falentin-Daudré<sup>2</sup>, J. Achard<sup>1</sup> and F. Bénédic<sup>1</sup>

<sup>1</sup>Université Sorbonne Paris Nord, LSPM, CNRS, UPR 3407, Villetaneuse, France, <sup>2</sup>LBPS-CSPBAT, UMR 7244, Université Sorbonne Paris Nord, Villetaneuse, France

5.143

**Block copolymers (BCP) lithography for nanopatterning of diamond**

N.-H. Amine<sup>1</sup>, I. Murataj<sup>2,3</sup>, N. Baglieri<sup>2,3</sup>, P. Olivero<sup>1</sup>, F. F. Lupi<sup>3</sup>, F. Picollo<sup>1</sup>

<sup>1</sup>Department of physics, Università di Torino, via Pietro Giuria 1, 10125 Torino, Italy, <sup>2</sup>Nanoscale science and technology, Istituto Nazionale di Ricerca Metrologica, Strada delle Cacce 91 - 10135 Torino, Italy, <sup>3</sup>Politecnico di Torino, Corso Duca degli Abruzzi, 24, 10129 Torino, Italy

5.144

**Towards diamond-based biosensors: Specific binding protein immobilization on functionalized and nanostructured UNCD**

D. Merker<sup>1</sup>, D. Bertinetti<sup>2</sup>, F. Herberg<sup>2</sup>, J. P. Reithmaier<sup>1</sup>, C. Popov<sup>1</sup>

<sup>1</sup>*Institute of Nanostructure Technologies and Analytics (INA), University of Kassel, Heinrich-Plett-Str. 40, 34132 Kassel, Germany,*

<sup>2</sup>*Department of Biochemistry, University of Kassel, Heinrich-Plett-Str. 40, 34132 Kassel, Germany*

5.145

**Nanodiamonds coated with thermoresponsive paramagnetic polymers for optically detected thermometry**

J. Copak<sup>1</sup>, M. Gulka<sup>1</sup>, E. Fialova<sup>1</sup>, M. Sow<sup>2</sup>, F. Jelezko<sup>2</sup>, P. Cigler<sup>1</sup>

<sup>1</sup>*Institute of Organic Chemistry and Biochemistry, of the CAS, Flemingovo nam. 2, Prague, Czechia,* <sup>2</sup>*Institute of Quantum Optics, Ulm University, Ulm 89081, Germany*

5.146

**Surface optimization of nanodiamonds using non-thermal plasma**

M. Gulka<sup>1</sup>, P. Balasubramanian<sup>2</sup>, E. Shagieva<sup>3</sup>, J. Khun<sup>4</sup>, V. Scholtz<sup>4</sup>, F. Jelezko<sup>2</sup>, S. Stehlik<sup>3</sup>, P. Cigler<sup>1</sup>

<sup>1</sup>*Institute of Organic Chemistry and Biochemistry, of the CAS, Flemingovo nam. 2, Prague, Czechia,* <sup>2</sup>*Institute of Quantum Optics, Ulm University, Ulm 89081, Germany,* <sup>3</sup>*Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10, 162 00 Prague 6, Czechia,*

<sup>4</sup>*Department of Physics and Measurements, University of Chemistry and Technology in Prague, Czechia*

5.147

**Liquid nanoscale NMR with NV centers – Mitigating diffusion through confinement**

C. Bounds<sup>1,2</sup>, N. Staudenmaier<sup>2</sup>, A. Vijayakumar-Sreeja<sup>2</sup>, G. Genov<sup>2</sup>, S. Dietel<sup>2</sup>, G. Wolff<sup>2</sup>, K. Spohn<sup>2</sup>, P. Vetter<sup>2</sup>, J. Scharpf<sup>3</sup>, T. Uden<sup>3</sup>, C. Findler<sup>2,4</sup>, J. Lang<sup>2,4</sup>, P. Neumann<sup>3</sup>, F. Jelezko<sup>2</sup>

<sup>1</sup>*School of Physics and Astronomy, Monash University, 3800 Melbourne, Australia,* <sup>2</sup>*Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany,* <sup>3</sup>*NVision Imaging Technologies GmbH, Albert-Einstein-Allee 11, 89081 Ulm, Germany,*

<sup>4</sup>*Diatope GmbH, Buchenweg 23, 88444 Ummendorf, Germany*

5.148

**Laser refrigeration of diamond**

T. Spohn<sup>1</sup>, J. Lang<sup>1,2</sup>, C. Gupta<sup>3</sup>, G. Felsted<sup>3</sup>, R. Blinder<sup>1</sup>, Y. Mindarava<sup>1</sup>, P. Pauzuskie<sup>2</sup>, F. Jelezko<sup>1</sup>

*Max Planck Institute for Polymer Research, Ackermannweg 10, Mainz, Germany*

5.149

**Time-resolved spectroscopy of electronic dynamics in nitrogen-vacancy centers in diamond: from femto- to milliseconds**

M. T. Luu, A. T. Younesi and R. Ulbricht

<sup>1</sup>*Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany,* <sup>2</sup>*Diatope GmbH, Buchenweg 23, 88444 Ummendorf, Germany,* <sup>3</sup>*Department of Materials Science and Engineering, University*

**19:50 Closing Day 1 “Hasselt Diamond Workshop 2023 – SBDD XXVII”.**

## Thursday, March 16, 2023

### Session 6

#### Advanced Processing

Chair: **To be defined**

**09:00**

6.1 (Invited)

#### Femtosecond laser writing inside diamond

P. Salter

*Department of Engineering Science, University of Oxford, Parks Road, Oxford OX1 3PJ, UK*

**09:30**

6.2

#### Ultrafast Laser Microfabrication in Diamond Using Pulsed Bessel Beams

A. Kuriakose<sup>1,\*</sup>, A. Britel<sup>2</sup>, P. Apra<sup>2</sup>, F. Picollo<sup>2</sup>, A. Giakoumaki<sup>3</sup>, S. Eaton<sup>3</sup>, O. Jedrkiewicz<sup>1</sup>

<sup>1</sup>IFN-CNR, Udr di Como, Via Valleggio 11, 22100 Como, Italy, <sup>2</sup>Dept. of Physics "NIS" Inter-departmental Centre, Univ. of Torino, Via Giuria 1, 10125, Torino, Italy, <sup>3</sup>IFN-CNR, Piazza Leonardo da Vinci 32, 20133, Milano (Italy)

**09:50**

6.3

#### Laser-induced diamond modification – the origin of conducting and semiconducting regions

M.P. Villar<sup>1</sup>, F. Lloret<sup>1</sup>, D.F. Reyes<sup>1</sup>, M. Krueger<sup>2</sup>, C. Henderson<sup>3</sup>, P. Salter<sup>2</sup>, D. Araujo<sup>1</sup> and R.B. Jackman<sup>3</sup>

<sup>1</sup>Dpt. Ciencia de los Materiales e IM y QI. Universidad de Cádiz, 11510-Puerto Real (Cádiz), Spain, <sup>2</sup>Department of Engineering Science, University of Oxford, Parks Road, Oxford OX1 3PJ, UK, <sup>3</sup>London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, UCL (University College London), 17-19 Gordon Street, London, WC1H 0AH, UK

**10:10**

6.4

#### Fabrication of 1D and 2D CVD Diamond Nanostructures from Block Copolymer Micelles

P. W. May, M. Brumwell, R. L. Harniman, E. J.W. Smith

*School of Chemistry, University of Bristol, Bristol, BS8 1TS, United Kingdom*

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

### Session 7

#### Electronic & Energy Applications

Chair: **To be defined**

**11:10**

7.1 (Invited)

#### Should we still believe in diamond power electronics?

D. Eon<sup>1</sup>

<sup>1</sup>University Grenoble Alpes, CNRS, Grenoble INP, Institut Neel, 38000 Grenoble, France

**11:40**

7.2

#### Diamond electro-optically controlled JFET based memory

M. Kah<sup>1</sup>, C. Masante<sup>1</sup>, F. Koeck<sup>2</sup>, R. Nemanich<sup>2</sup>, N. Rouger<sup>3</sup>, J. Pernot<sup>1</sup>

<sup>1</sup>Univ. Grenoble Alpes, Institut Néel CNRS, 38042, Grenoble, France, <sup>2</sup>Department of Physics, Arizona State University, Tempe, Arizona 85287-1504, USA, <sup>3</sup>Université de Toulouse; LAPLACE; CNRS; INPT; UPS, F-31071 Toulouse, France

**12:00**

7.3

#### Application of diamond derived onion like carbon in sustainable energy storage

T. Neff<sup>1,2</sup>, C. Bauer<sup>2</sup>, A. Krueger<sup>1</sup>

<sup>1</sup>Institute of Organic Chemistry, University of Stuttgart, Pfaffenwaldring 55, 70569, Stuttgart, Germany, <sup>2</sup>Institute of Organic Chemistry, Julius-Maximilian University Würzburg, Am Hubland, 97074, Würzburg, Germany

**12:20 Lunch (Grand Banquet Hall) + Joint Committees Meeting (Fluistertuin)**

## Session 8

### NV Centres I

Chair: **To be defined**

**13:50**

8.1

#### **NV magnetometry based on stimulated emission readout**

F. A. Hahl<sup>1</sup>, L. Lindner<sup>1</sup>, X. Vidal<sup>1</sup>, T. Luo<sup>1</sup>, T. Ohshima<sup>2</sup>, S. Onoda<sup>2</sup>, S. Ishii<sup>2</sup>, A. M. Zaitsev<sup>3,4</sup>, M. Capelli<sup>5</sup>, B. C. Gibson<sup>6</sup>, A. D. Greentree<sup>6</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>National Institutes for Quantum Science and Technology (QST), 1233 Watanuki, Takasaki, Gunma 370-1292, Japan, <sup>3</sup>The College of Staten Island/CUNY, 2800 Victory Blvd., Staten Island, NY 10312, USA, <sup>4</sup>Gemological Institute of America, 50 W 47th St #800, New York, NY 10036, USA, <sup>5</sup>School of Science, RMIT University, Melbourne, VIC 3001, Australia, <sup>6</sup>ARC Centre of Excellence for Nanoscale BioPhotonics, School of Science, RMIT University, Melbourne, VIC 3001, Australia

**14:10**

8.2

#### **Efficient and all-carbon electrical readout of a NV based quantum sensor**

G. Villaret<sup>1</sup>, L. Mayer<sup>1\*</sup>, M. Schmidt<sup>2</sup>, S. Magaletti<sup>1</sup>, M. De Feudis<sup>3</sup>, M. Markham<sup>4</sup>, A. Edmonds<sup>4</sup>, J.-F. Roch<sup>2</sup>, T. Debuisschert<sup>1</sup>

<sup>1</sup>Thales Research and Technology, 1 avenue Augustin Fresnel, 91767 Palaiseau Cedex, France, <sup>2</sup>Université Paris-Saclay, CNRS, ENS Paris-Saclay, CentraleSupélec, LuMIn, 91190 Gif-sur-Yvette, France, <sup>3</sup>Laboratoire de Physique des Matériaux et Surfaces, CY Cergy Paris Université, 95031 Cergy-Pontoise, France, <sup>4</sup>Element Six, Global Innovation Centre, Fermi Avenue, Harwell, Didcot, OX11 0QR, United Kingdom

**14:30**

8.3

#### **High PDMR contrast and photovoltaic effect of NV centres in diamond**

M. Petrov, B. Carmans, J. Hruby, R. Tavakoli Dinani and M. Nesladek

*Institute for Materials Research (IMO), Hasselt University, Wetenschapspark 1, B-3590, Diepenbeek, Belgium*

## Session 9

### Posters II & Coffee Break

Chairs: **To be defined**

**14:50 – 16:20 (Grand & Small Banquet Hall)**

For a detailed list of posters, see [Session 5](#).

## Session 10

### Technology

Chair: **Ken Haenen, Hasselt University & IMEC vzw, Belgium**

**16:20**

10.1 (Invited)

#### **Tunable, transferable, and isotopically engineered diamond membranes for quantum and more**

N. Delegan<sup>1</sup>, X. Guo<sup>2</sup>, J. C. Marcks<sup>2</sup>, A. High<sup>2</sup>, D. D. Awschalom<sup>1,2</sup>, F. Joseph Heremans<sup>1,2</sup>

<sup>1</sup>Center for Molecular Engineering and Materials Science Division, Argonne National Laboratory, 9700 S Cass Ave, Lemont, IL 60439, United States, <sup>2</sup>Prizker School for Molecular Engineering, University of Chicago, 5640 S Ellis Ave, Chicago, IL 60637, United States

**16:50**

10.2

#### **Epitaxial Lateral Overgrowth of Wafer-scale Heteroepitaxial Diamond for Quantum Applications**

V. Lebedev, J. Engels, T. Luo, J. Kustermann, J. Weippert, C. Giese, L. Kirste, P. Quellmalz, J. Jeske, and P. Knittel

*Fraunhofer IAF, Fraunhofer Institute for Applied Solid State Physics, 79108 Freiburg, German*

**17:10**

10.3

**Hot hydrogen implantation of diamond for SmartCut™ process**

C. Masante, J. Chretien, P. Gilles, F. Milesi, F. Mazen, L. Le Van-Jodin

*Univ. Grenoble Alpes, CEA, LETI, 38000 Grenoble, France*

**17:30**

10.4 (Invited)

**High Performance GaN-on-Diamond Devices Fabrication using Diamond Wafer Bonding Technology**

J. Liang<sup>1,2</sup>, Y. Ohno<sup>3</sup>, N. Shigekawa<sup>1,2</sup>

<sup>1</sup>*Department of Electronic Information Systems, Osaka City University, Sugimoto 3-3-138, Sumiyoshi, Osaka 558-8585, Japan,*

<sup>2</sup>*Department of Physical Electronics, Osaka Metropolitan University, Sugimoto 3-3-138, Sumiyoshi, Osaka 558-8585, Japan,* <sup>3</sup>*Institute for Materials Research (IMR), Tohoku University, 2145-2 Narita, Oarai, Ibaraki, 311-1313, Japan*

**18:00** Closing Day 2 “Hasselt Diamond Workshop 2023 – SBDD XXVII”.

**20:00** Conference Dinner at the *Ravel Room* of the *Holiday Inn* sponsored by:





## Friday, March 17, 2023

### Session 11

#### NV Centres II

Chair: To be defined

09:00

11.1

#### Extending $T_2^*$ of ensemble NV centers by mitigating stress distribution on highly-misoriented CVD diamond

T. Tsujii, T. Sekiguchi, T. Iwasaki, T. Hatano

*Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, 2-12-1 NE-18, Ookayama, Meguro-ku, Tokyo, 152-8552, Japan*

09:20

11.2

#### Stabilization of shallow negatively charged nitrogen vacancy

M. W. Ngandeu Ngambou<sup>1</sup>, A. Tallaire<sup>1,2</sup>, O. Brinza<sup>1</sup>, V. Mille<sup>1</sup>, A. Valentin<sup>1</sup>, C. Perruchot<sup>3</sup>, F. Bénédic<sup>1</sup>, J. Achard<sup>1</sup>

<sup>1</sup>LSPM, CNRS, Université Sorbonne Paris Nord, 99 Avenue JB clément 93430, Villetaneuse, France, <sup>2</sup>IRCP, Chimie ParisTech, CNRS, PSL Research University, 11 rue Pierre et Marie Curie, 75005 Paris, France, <sup>3</sup>ITODYS, CNRS, Université Paris Cité, 15 Rue Jean Antoine de Baïf, 75013 Paris, France

09:40

11.3

#### Theory of spin-lattice relaxation for NV center in diamond by means of ab-initio calculations

M. C. Cambria<sup>1</sup>, A. Norambuena<sup>3</sup>, Y. Li<sup>1</sup>, H. Dinani<sup>3</sup>, G. Thiering<sup>5</sup>, A. R. H. Gardill<sup>1</sup>, I. Kemeny<sup>1</sup>, V. Lordi<sup>2</sup>, A. Gali<sup>5,6</sup>, J. R. Maze<sup>4</sup>, S. Kolkowitz<sup>1</sup>

<sup>1</sup>Department of Physics, University of Wisconsin, Madison, Wisconsin 53706, USA, <sup>2</sup>Lawrence Livermore National Laboratory, Livermore, CA, 94551, USA, <sup>3</sup>Universidad Mayor, Santiago, Chile, <sup>4</sup>Instituto de Física, Pontificia Universidad Católica de Chile, Casilla 306, Santiago, Chile, <sup>5</sup>Institute for Solid State Physics and Optics, Wigner Research Centre for Physics, Budapest, Hungary, <sup>6</sup>Department of Atomic Physics, Budapest University of Technology and Economics, Budapest, Hungary

10:00

11.4

#### Charge state evaluation of nitrogen vacancy centers in diamond MOS structure

M. Haruyama<sup>1</sup>, J. Han<sup>1,2</sup>, Y. Kato<sup>1</sup>, M. Ogura<sup>1</sup>, H. Kato<sup>1</sup>, T. Makino<sup>1,2</sup>

<sup>1</sup>Advanced Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology, 1-1-1 Umezono, Tsukuba, Ibaraki, Japan, <sup>2</sup>Faculty of Pure and Applied Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki, Japan

10:20

11.5

#### Oxygen-related defects in diamond: single ST1, ensembles and beyond

P. Neugebauer, S. Diziain, T. Lühmann, J. Meijer, S. Pezzagna

*Applied Quantum Systems, Felix-Bloch Institute for Solid-State Physics, Universität Leipzig, Linnéstraße 5, 04103 Leipzig, Germany*

10:40 Coffee Break (Grand Banquet Hall)

### Session 12

#### Quantum Sensing

Chair: To be defined

11:10

12.1 (Invited)

#### Microscale NMR spectroscopy using NV-diamonds

D. B. Bucher

*Technical University of Munich, School of Natural Sciences, Chemistry Department, Lichtenbergstr. 4, 85748 Garching, Germany*

11:40

12.2

### Quantum diamond magnetometry for high pressure sensing

C. Dailledouze<sup>1</sup>, A. Hilberer<sup>1</sup>, L. Toraille<sup>2</sup>, L. Hanlon<sup>1</sup>, M.-P. Adam<sup>1</sup>, G. Weck<sup>2</sup>, M. Schmidt<sup>1</sup>, P. Loubeyre<sup>2</sup> and J.-F. Roch<sup>1</sup>

<sup>1</sup>*LuMIn, ENS Paris-Saclay, 4 Avenue des sciences, 91190 Gif-sur-Yvette, France,* <sup>2</sup>*CEA, DAM, DIF, Chemin du Ru, 91680 Bruyères-le-Château, France*

12:00

12.3

### Thermometry in diamond suspended waveguides with NV centers as quantum thermometers

V. Goblot<sup>1</sup>, E. Losero<sup>1</sup>, H. Babashah<sup>1</sup>, M. Simoncelli<sup>2</sup>, C. Galland<sup>1,3</sup>

<sup>1</sup>*Laboratory of Quantum and Nano-Optics (LQNO), Institut of Physics, Ecole Polytechnique Fédérale de Lausanne (EPFL), CH-1015 Lausanne, Switzerland,* <sup>2</sup>*Theory of Condensed Matter Group of the Cavendish Laboratory, University of Cambridge, United Kingdom,*

<sup>3</sup>*Center for Quantum Science and Engineering, EPFL, Lausanne, Switzerland*

12:20

12.4

### A compact diamond quantum sensor head with side excitation

Y. Kainuma<sup>1</sup>, Y. Shigenobu<sup>1</sup>, Y. Hatano<sup>1</sup>, Y. Shibata<sup>2</sup>, H. Kato<sup>3</sup>, S. Onoda<sup>4</sup>, T. Ohshima<sup>4</sup>, M. Hatano<sup>1,4</sup>, and T. Iwasaki<sup>1</sup>

<sup>1</sup>*Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, 2-12-1 NE-18, Ookayama, Meguro-ku, Tokyo, 152-8552, Japan*

12:40 Lunch (Grand Banquet Hall)

## Session 13

### Charge Dynamics & Electrochemistry

Chair: **To be defined**

14:10

13.1

### Carrier mobility up to $10^6$ cm<sup>2</sup>/(V.s) measured in a single-crystal diamond by the time of flight electron-beam induced current technique

A. Portier<sup>1,2</sup>, F. Donatini<sup>2</sup>, D. Dauvergne<sup>1</sup>, M. L. Gallin-Martel<sup>1</sup>, J. Pernot<sup>2</sup>

<sup>1</sup>*Université Grenoble Alpes, CNRS, Grenoble INP, LPSC-IN2P3 UMR 5821, 38000 Grenoble, France,* <sup>2</sup>*Université Grenoble-Alpes, CNRS, Institut Néel, UPR2940, 38000 Grenoble, France*

14:30

13.2

### Gating of the 2D hole transport in H-diamond by subsurface charges imaged by EBIC

E. Strelcov<sup>1</sup>, J. T. Diulus<sup>1</sup>, A. Kolmakov<sup>1\*</sup>

<sup>1</sup>*National Institute of Standards and Technology, 100 Bureau Drive, Gaithersburg, USA*

14:50

13.3

### Interlayer-affected diamond electrochemistry

X. Chen<sup>1,\*</sup>, X. Dong<sup>1</sup>, E. Ahmed<sup>2,3</sup>, P. Pobedinskas<sup>2,3</sup>, G. Krishnamurthy<sup>2,3</sup>, X. Jiang<sup>1</sup>, K. Haenen<sup>2,3</sup>, N. Yang<sup>1</sup>

<sup>1</sup>*Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany,* <sup>2</sup>*Institute for Materials Research (IMO), Hasselt University, 3590 Diepenbeek, Belgium,* <sup>3</sup>*IMOMECA, IMEC vzw, 3590 Diepenbeek, Belgium*

15:10

13.4

### Noise in Superconducting Diamond Microwave Resonators

J. A. Cuenca, T. Brien, S. Mandal, S. Manifold, S. Doyle, A. Porch, G. M. Klemencic,\* O. A. Williams

*School of Physics and Astronomy, Cardiff University, The Parade, Cardiff, CF24 3AA, UK.*

15:30

13.5

**Surface functionalization of nanodiamond for the photosensitized generation of solvated electrons**

A. H. Day,<sup>1</sup> B. Kiendl,<sup>2</sup> S. Choudhury,<sup>3</sup> F. Buchner,<sup>3</sup> K. Atak,<sup>3</sup> A. Chemin,<sup>3</sup> C. Merschjann,<sup>3</sup> E. Hadzifejzovic,<sup>4</sup> T. D.W. Claridge,<sup>4</sup> K. Larsson,<sup>5</sup> A. Venerosy,<sup>6</sup> M. M. Lounasvuori,<sup>4</sup> N. Zabarska,<sup>7</sup> B. Iliev,<sup>7</sup> T. J. S. Schubert,<sup>7</sup> H. A. Girard,<sup>6</sup> J.-C. Arnault,<sup>6</sup> T. Petit,<sup>3</sup> J. S. Foord,<sup>4</sup> A. Krueger<sup>1</sup>

<sup>1</sup>Institute of Organic Chemistry, University of Stuttgart, Germany, <sup>2</sup>Institute of Organic Chemistry, Julius-Maximilians-University Würzburg, Germany, <sup>3</sup>Helmholtz-Zentrum Berlin, <sup>4</sup>Chemistry Research Laboratory, University of Oxford, UK, <sup>5</sup>Angstrom Laboratory, Uppsala University, Sweden, <sup>6</sup>Diamond Sensors Laboratory, CEA-LIST, France, <sup>7</sup>Iolitec GmbH

15:50 Closing “Hasselt Diamond Workshop 2023 – SBDD XXVII”.



Workshop sponsored by [STPL](#), [MUEGGE](#), [Quantum Diamonds](#), [Freiberg Instruments](#), [HiQuTe Diamond](#), [Qnami](#), [Seki Diamond Systems](#), [Orbray](#), [Diamfab](#), and [Hasselt University](#) through the [Institute for Materials Research \(IMO\)](#) and [IMOMECC](#).

# HASSELT DIAMOND WORKSHOP 2023 – SBDD XXVII

## Tuesday, March 14, 2023

18:00 – 19:00

Registration at the *Express by Holiday Inn* & Reception sponsored by:



## Wednesday, March 15, 2023

08:20 – 08:50

Registration at the *cultuurcentrum Hasselt*.

08:50 – 09:00

Opening “Hasselt Diamond Workshop 2023 – SBDD XXVII”.

09:00 – 10:40

Session 1

Electronic Devices

Chair: David Moran, University of Glasgow, U.K.

10:40 – 11:20

Coffee Break (Grand Banquet Hall)

11:20 – 12:40

Session 2

Colour Centres & Optical Emission

Chair: To be defined

12:40

SBDD XXVII group photo (Front entrance cHa)

12:50 – 14:20

Lunch (Grand Banquet Hall)

14:20 – 15:50

Session 3

Bio Applications

Chair: To be defined

15:50 – 16:30

Coffee Break (Grand Banquet Hall)

16:30 – 17:50

Session 4

Nanodiamond Quantum Sensing

Chair: To be defined

17:50 – 19:50

Session 5

Posters I & Reception sponsored by:

Chairs: To be defined



19:50

Closing Day 1 “Hasselt Diamond Workshop 2023 – SBDD XXVII”.

## Thursday, March 16, 2022

09:00 – 10:30

Session 6

Advanced Processing

Chair: To be defined

10:30 – 11:10

Coffee Break (Grand Banquet Hall)

11:10 – 12:20

Session 7

Electronic & Energy Applications

Chair: To be defined

- 12:20 – 13:50 Lunch (Grand Banquet Hall)
- 13:50 – 14:50 **Session 8**  
**NV Centres I**  
 Chair: **To be defined**
- 14:50 – 16:20 **Session 9**  
**Posters II**  
 Chairs: **To be defined**
- 16:20– 18:00 **Session 10**  
**Technology**  
 Chair: **Ken Haenen, Hasselt University & IMEC vzw, Belgium**
- 18:00 Closing Day 2 **“Hasselt Diamond Workshop 2023 – SBDD XXVII”**.
- 20:00 Conference dinner at the *Ravel Room* of the *Holiday Inn* sponsored by:



## Friday, March 17, 2022

- 09:00 – 10:40 **Session 11**  
**NV Centres II**  
 Chair: **To be defined**
- 10:40 – 11:10 Coffee Break (Grand Banquet Hall)
- 11:10 – 12:40 **Session 12**  
**Quantum Sensing**  
 Chair: **To be defined**
- 12:40 – 14:10 Lunch (Grand Banquet Hall)
- 14:10 – 15:50 **Session 13**  
**Charge Dynamics & Electrochemistry**  
 Chair: **To be defined**
- 15:50 Closing **“Hasselt Diamond Workshop 2023 – SBDD XXVII”**.



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