



OPTICS + PHOTONICS TECHNICAL PROGRAM.

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NANOSCIENCE +
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SOLAR
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San Diego Convention Center
San Diego, California, USA

Exhibition: 19–21 August 2014

Conferences & Courses: 17–21 August 2014

MONDAY 18 AUGUST

LOCATION: CONV. CTR. ROOM 6A .. MON 9:15 AM TO 12:00 PM

NanoScience + Engineering Plenary Session

Session Chairs: **James G. Grote**, Air Force Research Lab. (USA);
Satoshi Kawata, Osaka Univ. (Japan)

9:15 am: **Non-Covalent Interactions of Carbon Nanotubes in Polymer Composites** (*Plenary*), Eva M. Campo, Bangor Univ. (United Kingdom) [9160-500]

Coffee Break Mon 10:00 am to 10:30 am

10:30 am: **Nanoscale Silicon as an Optical Material** (*Plenary*), Philippe M. Fauchet, Vanderbilt Univ. (USA) [9160-501]

11:15 am: **Nanoscale Engineering Optical Nonlinearities and Nanolasers** (*Plenary*), Shaya Fainman, Univ. of California, San Diego (USA) [9160-502]

Lunch Break Mon 12:00 pm to 1:00 pm

SESSION 5

LOCATION: CONV. CTR. ROOM 15A ... MON 1:00 PM TO 3:30 PM

Skymions

Session Chair: **Wolfgang Weber**, Institut de Physique et Chimie des Matériaux de Strasbourg (France)

1:00 pm: **Dynamics and topological mass of skyrmionic spin structures** (*Invited Paper*), Christoforos Moutafis, Paul Scherrer Institut (Switzerland); Felix Büttner, Johannes Gutenberg Univ. Mainz (Germany) and Technische Univ. Berlin (Germany); Andre Bisig, Johannes Gutenberg Univ. Mainz (Switzerland); Benjamin Krüger, Johannes Gutenberg Univ. Mainz (Germany); C. A. F. Vaz, Paul Scherrer Institut (Switzerland) and Johannes Gutenberg Univ. Mainz (Germany); Michael Foerster, Mohamad-Assaad Mawass, Johannes Gutenberg Univ. Mainz (Germany); Michael Schneider, Christian Gunther, Technische Univ. Berlin (Germany); Jan Geilhufe, Technische Univ. Eindhoven (Germany); C. von Korff Schmising, J. Mohanty, B. Pfau, Stefan Schaffert, Technische Univ. Berlin (Germany); Tomek Schulz, Johannes Gutenberg Univ. Mainz (Germany); Markus Weigand, Max-Planck Institut für Intelligente Systeme (Germany); Henk J. M. Swagten, Technische Univ. Eindhoven (Netherlands); Jörg Raabe, Paul Scherrer Institut (Switzerland); Mathias Kläui, Johannes Gutenberg Univ. Mainz (Germany); Stefan Eisebitt, Technische Univ. Berlin (Germany) and Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany) [9167-32]

1:30 pm: **Micromagnetics with Dzyaloshinskii-Moriya interaction: from domain walls to skyrmions** (*Invited Paper*), Stanislas Rohart, Univ. Paris-Sud 11 (France) [9167-33]

2:00 pm: **Writing and deleting single magnetic skyrmions** (*Invited Paper*), Niklas Romming, Christian Hanneken, Matthias Menzel, Jessica E. Bickel, Boris Wolter, Kirsten von Bergmann, André Kubetzka, Roland Wiesendanger, Univ. Hamburg (Germany) [9167-34]

2:30 pm: **Skyrmions and helicoids in epitaxial thin film helical magnets** (*Invited Paper*), Theodore L. Monchesky, Murray N. Wilson, Dalhousie Univ. (Canada); Philipp N. Rybavov, Institute of Metal Physics (Russian Federation); Anna B. Butenko, Alexei B. Bogdanov, Ulrich K. Rossler, Leibniz-Institut für Festkörper- und Werkstofforschung Dresden (Germany); Helmut Fritzsche, Canadian Neutron Beam Centre (Canada); Kathryn Krycka, Brian J. Kirby, National Institute of Standards and Technology (USA); James C. Loudon, Univ. of Cambridge (United Kingdom); Michael D. Roberston, Acadia Univ. (Canada); Simon Meynell, Eric A. Karhu, David Lake, Andrew S. Quigley, Dalhousie Univ. (Canada); Charles F. Majkrzak, National Institute of Standards and Technology (USA) [9167-35]

3:00 pm: **Interaction between vortex walls and asymmetric notches in Permalloy nanowires** (*Invited Paper*), Luiz Sampaio Lima, Centro Brasileiro de Pesquisas Físicas (Brazil) [9167-36]

Coffee Break Mon 3:30 pm to 4:00 pm

SESSION 6

LOCATION: CONV. CTR. ROOM 15A .. MON 4:00 PM TO 6:00 PM

Helical Order and Organics

Session Chair: **Luiz Sampaio Lima**, Centro Brasileiro de Pesquisas Físicas (Brazil)

4:00 pm: **Current-driven dynamics of chiral domain walls** (*Invited Paper*), Geoffrey S. Beach, Massachusetts Institute of Technology (USA) [9167-37]

4:30 pm: **Helical order in one dimensional semiconductors** (*Invited Paper*), Peter Stano, RIKEN (Japan) [9167-38]

5:00 pm: **Direct observation of a highly spin-polarized organic spinterface at room temperature** (*Invited Paper*), Wolfgang Weber, Fatima Djeghloul, Fatima Ibrahim, Institut de Physique et Chimie des Matériaux de Strasbourg (France); Matteo Cantoni, Politecnico di Milano (Italy); Martin Bowen, Loic Joly, Samy Boukari, Institut de Physique et Chimie des Matériaux de Strasbourg (France); Philippe Ohresser, Francois Bertran, Patrick Lefevre, Synchrotron SOLEIL (France); Pardeep Thakur, ESRF - The European Synchrotron (France); Fabrice Scheurer, Institut de Physique et Chimie des Matériaux de Strasbourg (France); Toshio Miyamachi, Karlsruher Institut für Technologie (Germany); Richard Mattana, Pierre Seneor, Unité Mixte de Physique CNRS/Thales (France); Ali Jaafar, Institut de Physique et Chimie des Matériaux de Strasbourg (France); Christian Rinaldi, Politecnico di Milano (Italy); Saquib Javaid, Jacek Arabski, Jean-Paul Kappler, Institut de Physique et Chimie des Matériaux de Strasbourg (France); Wulf Wulfhekel, Karlsruher Institut für Technologie (Germany); Nicholas B. Brookes, ESRF - The European Synchrotron (France); Riccardo Bertacco, Politecnico di Milano (Italy); Amina Taleb, Synchrotron SOLEIL (France); Mebarek Alouani, Eric Beaurepaire, Institut de Physique et Chimie des Matériaux de Strasbourg (France) [9167-39]

5:30 pm: **Molecular nanomagnetism for spintronic devices** (*Invited Paper*), Marco Affronte, Univ. degli Studi di Modena e Reggio Emilia (Italy) [9167-40]

TUESDAY 19 AUGUST

SESSION 7

LOCATION: CONV. CTR. ROOM 15A .. TUE 8:00 AM TO 10:00 AM

Magneto-optics and Landé Factor

Session Chair: **Christopher J. Stanton**, Univ. of Florida (USA)

8:00 am: **Cyclotron resonance in ferromagnetic semiconductors at ultrahigh magnetic fields** (*Invited Paper*), Yasuhiro H. Matsuda, The Univ. of Tokyo (Japan) [9167-41]

8:30 am: **Magneto-optical spectroscopy of narrow gap ferromagnetic semiconductors** (*Invited Paper*), Giti A. Khodaparast, Virginia Polytechnic Institute and State Univ. (USA); Yasuhiro H. Matsuda, The Univ. of Tokyo (Japan); Dipta Saha, Gary D. Sanders, Christopher J. Stanton, Univ. of Florida (USA); Bruce W. Wessels, Northwestern Univ. (USA) [9167-42]

9:00 am: ***g*-factor anisotropy driven spin relaxation in germanium** (*Invited Paper*), Pengke Li, Univ. of Maryland (USA) [9167-43]

9:30 am: **Time resolved magneto-optical studies of InAsP ternary alloys** (*Invited Paper*), Brenden A. Magill, Michael A. Meeker, Travis R. Merrit, Giti A. Khodaparast, Virginia Polytechnic Institute and State Univ. (USA); Stephen A. McGill, National High Magnetic Field Lab. (USA); Chris J. Palmstrom, Univ. of California, Santa Barbara (USA) [9167-44]

Coffee Break Tue 10:00 am to 10:30 am

SESSION 8

LOCATION: CONV. CTR. ROOM 15A .. TUE 10:30 AM TO 12:30 PM

Magnetic RAM I

Session Chair: **Luc Thomas**, Headway Technologies, Inc. (USA)

10:30 am: **Properties of CoFeB-MgO magnetic tunnel junctions down to 11 nm** (*Keynote Presentation*), Hideo Ohno, Tohoku Univ. (Japan) [9167-45]

11:30 am: **Characterization of retention times and critical currents of STT-MRAM cells** (*Invited Paper*), Alexey Khvalkovskiy, Volodymyr Voznyuk, Sebastian Schafer, Dmytro Apalkov, Robert Beach, Vladimir Nikitin, SAMSUNG Electronics Co., Ltd. (USA) [9167-46]

12:00 pm: **Status and outlook of STT-MRAM development** (*Invited Paper*), Tai Min, IMEC (Belgium) [9167-47]

Lunch/Exhibition Break Tue 12:30 pm to 1:30 pm