



2 - 7 February 2013
The Moscone Center
San Francisco, California United States

Conference 8609

Synthesis and Photonics of Nanoscale Materials X

Conference Program Track: **Laser Micro-/Nanoengineering** ()

[View Daily Schedule of Program Track](#)

Available in print as **Proceedings of SPIE Volume 8609**

Dates: **Sunday-Tuesday 3 - 5 February 2013**

Location: **120 (Exhibit Level)**

Conference Chairs

Jan J. Dubowski, Univ. de Sherbrooke (Canada); **David B. Geohegan**, Oak Ridge National Lab. (United States); **Frank Träger**, Univ. Kassel (Germany)

Program Committee

Paolo Biagioni, Politecnico di Milano (Italy); **J. Thomas Dickinson**, Washington State Univ. (United States); **Costas P. Grigoropoulos**, Univ. of California, Berkeley (United States); **Richard F. Haglund, Jr.**, Vanderbilt Univ. (United States); **Hiroshi Kumagai**, Osaka City Univ. (Japan); **Thomas K. Lippert**, Paul Scherrer Institut (Switzerland); **Yong Feng Lu**, Univ. of Nebraska-Lincoln (United States); **Jim Schuck**, The Molecular Foundry (United States); **Xianfan Xu**, Purdue Univ. (United States); **Yaqiong Xu**, Vanderbilt Univ. (United States)

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Sunday 3 February

Session 1: Self-organized and Laser-induced Nanostructure

Date: **Sunday 3 February**
Time: **8:30 AM - 10:20 AM**
Room: **120 (Exhibit Level)**

Session Chair: **Jan J. Dubowski**, Univ. de Sherbrooke (Canada)

Methods and materials for bio-nanophotonics: 10 years perspective *(Invited Paper)*

Paper 8609-1
Time: **8:30 AM - 9:00 AM**
Author(s): Andrei V. Kabashin, Institut de Neurosciences Cognitives de la Méditerranée (France)
No abstract available

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SHG studies of self-assembled monolayers of subphthalocyanines on gold

Paper 8609-2
Time: **9:00 AM - 9:20 AM**
Author(s): Nadezda Lilicenko, Univ. Kassel (Germany); Robert Ossig, Universität Kassel (Germany); Ulrich Glebe, Ulrich Siemeling, Frank Hubenthal, Frank Träger, Univ. Kassel (Germany)

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Direct observation of early stages of surface ripples formation on LiNbO₃ substrate

Paper 8609-3
Time: **9:20 AM - 9:40 AM**
Author(s): Hisashi Shimizu, Go Obara, Mitsuhiro Terakawa, Keio Univ. (Japan); Eric Mazur, Harvard Univ. (United States); Minoru Obara, Keio Univ. (Japan)

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Permanent dichroic coloring of surfaces by laser-induced formation of chain-like self-organized silver nanoparticles within crystalline titania films

Paper 8609-4
Time: **9:40 AM - 10:00 AM**
Author(s): Nathalie N. Destouches, Nicolas N. Crespo-Monteiro, Thierry Epicier, Yaya Lefkir, Francis Vocanson, Stéphanie Reynaud, Univ. Claude Bernard Lyon 1 (France); Renée Charrière, Mathieu Hébert, University of Lyon - CNRS - University Jean Monnet, Saint-Etienne (France)

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Combinatorial synthesis using pulsed laser deposition on patterned substrate

Paper 8609-5
Time: **10:00 AM - 10:20 AM**
Author(s): Rudresh Ghosh, Yukihiko Hara, Rene Lopez, The Univ. of North Carolina at Chapel Hill (United States)

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Coffee break 10:20 AM - 10:50 AM

Session 2: Nano-scale Laser-Matter Interaction

Date: **Sunday 3 February**
Time: **10:50 AM - 12:10 PM**
Room: **120 (Exhibit Level)**

Session Chair: **Frank Träger**, Univ. Kassel (Germany)

Plasmonic-enhanced light-matter interactions *(Invited Paper)*

Paper 8609-6
Time: **10:50 AM - 11:20 AM**
Author(s): Steve Blair, The Univ. of Utah (United States)

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Probing strong correlations in vanadium dioxide with plasmonic nano antennae

Paper 8609-7
Time: **11:20 AM - 11:40 AM**
Author(s): Davon W. Ferrara, Joyeeta Nag, Evan R. MacQuarrie, Richard F. Haglund, Jr., Vanderbilt Univ. (United States)

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Light at the nanometer scale *(Invited Paper)*

Paper 8609-8
Time: **11:40 AM - 12:10 PM**
Author(s): Reuven Gordon, Univ. of Victoria (Canada)

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Lunch Break 12:10 PM - 1:40 PM

Session 3: Nano-particles and Applications

Date: **Sunday 3 February**
Time: **1:40 PM - 3:20 PM**
Room: **120 (Exhibit Level)**

Session Chair: **Andrei V. Kabashin**, Institut de Neurosciences Cognitives de la Méditerranée (France)

Efficient nanoparticle production using wire ablation

Paper 8609-9
Time: **1:40 PM - 2:00 PM**
Author(s): René Streubel, Univ. Duisburg-Essen (Germany); Gabriele Messina, Univ. degli Studi di Catania (Italy); Philipp Wagener, Univ. Duisburg-Essen (Germany); Giuseppe Compagnini, Univ. degli Studi di Catania (Italy); Stephan Barcikowski, Univ. Duisburg-Essen (Germany)

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Synthesis of ultrasmall TiO₂ nanoparticles by pulsed laser vaporization

Paper 8609-10
Time: **2:00 PM - 2:20 PM**
Author(s): David B. Geohegan, Murari Regmi, Christopher M. Rouleau, David L. Swanson, Joshua W. Halstead, Mina Yoon, Alex A. Puretzky, Gyula Eres, Oak Ridge National Lab. (United States); Mengkun Tian, Gerd Duscher, The Univ. of Tennessee (United States); Karren L. More, Oak Ridge National Lab. (United States)

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In situ sensor for trace analysis of pollutant chemicals in water based on a SERS/SERDS set-up and supported optimized noble metal nanoparticles

Paper 8609-11
Time: **2:20 PM - 2:40 PM**
Author(s): Robert Ossig, Univ. Kassel (Germany); Yong-Hyok Kwon, Technische Univ. Berlin (Germany); Frank Hubenthal, Univ. Kassel (Germany); Heinz-Detlef Kronfeldt, Technische Univ. Berlin (Germany)

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Development of visible-light activated titanium dioxide films with femtosecond laser

Paper 8609-12
Time: **2:40 PM - 3:00 PM**
Author(s): Naoto Horiguchi, Masahiro Tsukamoto, Osaka Univ. (Japan); Minoru Yoshida, Kinki Univ. (Japan); Togo Shinonaga, Osaka Univ. (Japan); Masanari Takahashi, Osaka Municipal Technical Research Institute (Japan); Masayuki Fujita, Nobuyuki Abe, Osaka Univ. (Japan)

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Optical amplification at 1.06 μm from laser ablated neodymium nanoparticles embedded in a polymer host

Paper 8609-13

Time: **3:00 PM - 3:20 PM**

Author(s): Gabriel Pelegrina-Bonilla, Andreas Schwenke, Laser Zentrum Hannover e.V. (Germany); Hakan Sayinc, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany); Uwe Morgner, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany) and Leibniz Univ. Hannover (Germany); Jörg Neumann, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany); Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) and Leibniz Univ. Hannover (Germany); Laszlo C. Sajti, Laser Zentrum Hannover e.V. (Germany); Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Coffee Break 3:20 PM - 3:50 PM**

Session 4: Nanofilms and Nano-interfaces

Date: **Sunday 3 February**Time: **3:50 PM - 5:30 PM**Room: **120 (Exhibit Level)**Session Chair: **David B. Geohegan**, Oak Ridge National Lab. (United States)

Integration of graphene with fiber optics and integrated optical devices for ultrafast photonic applications (Invited Paper)

Paper 8609-14

Time: **3:50 PM - 4:20 PM**

Author(s): Kevin P. Chen, Mingshan Li, Qing Wang, Univ. of Pittsburgh (United States); Yong Feng Lu, Univ. of Nebraska-Lincoln (United States)

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Real-time optical diagnostics of isothermal graphene growth induced by chemical vapor and pulsed laser deposition

Paper 8609-15

Time: **4:20 PM - 4:40 PM**

Author(s): Alex A. Puretzy, David B. Geohegan, Sreekanth Pannala, Christopher M. Rouleau, Gyula Eres, Murari Regmi, Oak Ridge National Lab. (United States); Gerd Duscher, The Univ. of Tennessee (United States)

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Transport dynamics resulting from through thin film femtosecond laser ablation

Paper 8609-16

Time: **4:40 PM - 5:00 PM**

Author(s): Christopher M. Rouleau, Alex A. Puretzy, David B. Geohegan, Mina Yoon, Karren L. More, Linda Zhang, Kevin Chen, Oak Ridge National Lab. (United States); Gerd Duscher, The Univ. of Tennessee (United States); Cheng-Yu Shih, Chengping Wu, Leonid V. Zhigilei, Univ. of Virginia (United States)

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Low-power plasmonic switching of an insulator-to-metal transition in vanadium dioxide (Invited Paper)

Paper 8609-17

Time: **5:00 PM - 5:30 PM**

Author(s): Richard F. Haglund, Jr., Davon W. Ferrara, Victor Diez-Blanco, Vanderbilt Univ. (United States); Carl Merrigan, William Jewell College (United States); Joyeeta Nag, Evan R. MacQuarrie, Vanderbilt Univ. (United States); Anthony Kaye, ITT Advanced Engineering & Sciences (United States)

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Monday 4 February

Session 5: Nanoscale Materials Synthesis and Processing: Joint Session with Conferences 8607 and 8609

Date: **Monday 4 February**Time: **8:10 AM - 10:00 AM**Room: **120 (Exhibit Level)**Session Chair: **Guido Hennig**, Daetwyler Graphics AG (Switzerland)

10-year perspective on laser generation of sub-100 nm structures (Invited Paper)

Paper 8609-18

Time: **8:10 AM - 8:40 AM**

Author(s): Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

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Formation of quantum dots from precursors in polymeric films by ps-laser

Paper 8607-1

Time: **8:40 AM - 9:00 AM**

Author(s): Gediminas Raciukaitis, Institute of Physics (Lithuania) and Ctr. for Physical Sciences and Technology (Lithuania); Paulius Gecys, Institute of Physics (Lithuania); Francesco Antolini, Lenuta Stroea, ENEA (Italy); Ashu K. Bansal, Ifor D. W. Samuel, Univ. of St. Andrews (United States)

Kingdom); Sybille Allard, Ulrich Scherf, Bergische Univ. Wuppertal (Germany); Luca Ortolani, Istituto per la Microelettronica e Microsistemi (Italy)

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Growth of periodic ZnO nano-crystals on buffer layer patterned by interference laser irradiation

Paper 8607-2

Time: **9:00 AM - 9:20 AM**

Author(s): Daisuke Nakamura, Tetsuya Shimogaki, Kota Okazaki, Mitsuhiro Higashihata, Kyushu Univ. (Japan); Yoshiki Nakata, Osaka Univ. (Japan); Tatsuo Okada, Kyushu Univ. (Japan)

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Sintering of solution-based aluminum nano-particles by laser ignition

Paper 8607-3

Time: **9:20 AM - 9:40 AM**

Author(s): Jie Zhang, Panasonic Boston Lab. (United States)

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F2 laser induced surface and interface modifications of aluminum thin films for selective metallization

Paper 8607-4

Time: **9:40 AM - 10:00 AM**

Author(s): Masayuki Okoshi, Kazufumi Iwai, National Defense Academy (Japan); Hidetoshi Nojiri, Renias Co., Ltd. (Japan); Narumi Inoue, National Defense Academy (Japan)

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Coffee Break 10:00 AM - 10:30 AM

Session 6: Nanoscale Patterning: Joint Session with Conferences 8607 and 8609

Date: **Monday 4 February**

Time: **10:30 AM - 12:00 PM**

Room: **120 (Exhibit Level)**

Nanopatterning beyond the far-field diffraction limit *(Invited Paper)*

Paper 8607-5

Time: **10:30 AM - 11:00 AM**

Author(s): Rajesh Menon, The Univ. of Utah (United States)

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Periodic surface structures generated by cross-polarized double femtosecond laser pulse irradiation sequences

Paper 8607-6

Time: **11:00 AM - 11:20 AM**

Author(s): Arkadi Rosenfeld, Sandra Höhm, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Jörn Bonse, Jörg Krüger, Bundesanstalt für Materialforschung und -prüfung (Germany)

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Periodic surface nanopatterning controlled with preformed scattering structures excited by femtosecond laser irradiation

Paper 8607-7

Time: **11:20 AM - 11:40 AM**

Author(s): Go Obara, Naoki Maeda, Hisashi Shimizu, Mitsuhiro Terakawa, Keio Univ. (Japan); Eric Mazur, Harvard Univ. (United States); Minoru Obara, Keio Univ. (Japan)

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Far-field laser direct synthesis of 60 nm silicon nanowires for chemical sensing

Paper 8607-8

Time: **11:40 AM - 12:00 PM**

Author(s): James I. Mitchell, Woongsik Nam, Xianfan Xu, Purdue Univ. (United States)

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Tuesday 5 February

Posters-Tuesday

Date: **Tuesday 5 February**

Time: **6:00 PM - 8:00 PM**

Room: **103 (Exhibit Level)**

Conference attendees are invited to attend the LASE poster session on Tuesday evening. Come view the posters. Enjoy light refreshments. Ask

questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/PWPosterGuidelines>.

Hydrogenated amorphous silicon laser micromachining for photonic devices

Paper 8609-19

Author(s): Michael G. Moebius, Eric Mazur, Harvard Univ. (United States)

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Wettability control of silicon surface by excimer laser irradiation in various aqueous environments

Paper 8609-20

Author(s): Neng Liu, Jan J. Dubowski, Univ. de Sherbrooke (Canada)

No abstract available

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On the role of laser heating and adatom diffusion in femtosecond laser induced tungsten nanograting

Paper 8609-21

Author(s): Tsinghua Her, Mark E. Green, The Univ. of North Carolina at Charlotte (United States)

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Femtosecond laser induced periodic nanostructures on titanium dioxide film for improving biocompatibility

Paper 8609-22

Author(s): Togo Shinonaga, Naoto Horiguchi, Masahiro Tsukamoto, Osaka Univ. (Japan); Akiko Nagai, Kimihiro Yamashita, Takao Hanawa, Tokyo Medical and Dental Univ. (Japan) and Institute of Biomaterials and Bioengineering (Japan); Nobuhiro Matsushita, Tokyo Institute of Technology (Japan); Guoqiang Xie, Tohoku Univ. (Japan); Nobuyuki Abe, Osaka Univ. (Japan)

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A study simulation on transmission characteristics of focused laser inside KDP crystal

Paper 8609-23

Author(s): Leimin Deng, Jun Duan, Xiaoyan Zeng, Shan Huang, Wuhan National Lab. for Optoelectronics (China)

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Laser patterning of graphene using pulsed UV laser irradiation

Paper 8609-25

Author(s): Takeshi Sasaki, National Institute of Advanced Industrial Science and Technology (Japan)

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Photoconductivity of metal nanoparticle ensembles supported by localized surface plasmon polariton resonances

Paper 8609-26

Author(s): Elena Vashchenko, Tigran A. Vartanyan, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Frank Träger, Frank Hubenthal, Univ. Kassel (Germany)

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