

Nanoimaging and Nanospectroscopy VI

Sunday - Tuesday 19 - 21 August 2018

Conference Sessions At A Glance

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- 1: Tip-Enhanced Raman Spectroscopy and Nanoscopy I
- 2: Tip-Enhanced Raman Spectroscopy and Nanoscopy II
- 3: Microscopy and Nanoscopy: Fluorescence Imaging
- 4: Micro- and Nano-Spectroscopy
Sunday Evening Plenary Session
Nanoscience + Engineering Plenary Session
- 5: Enhanced Spectroscopies
- 6: Microscopy and Nanoscopy: Near Field Imaging
Posters-Monday
- 7: Microscopy and Nanoscopy: Fluorescence-Free Imaging
- 8: Nano-Bio Spectroscopy and Imaging

Important Dates

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Abstract Due:
7 February 2018

Author Notification:
16 April 2018

Manuscript Due Date:
25 July 2018

Conference Committee

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Conference Chairs

[Prabhat Verma](#), Osaka Univ. (Japan)
[Alexander Egner](#), Laser-Lab. Göttingen e.V. (Germany)

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SUNDAY 19 AUGUST

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Session 1: Tip-Enhanced Raman Spectroscopy and Nanoscopy I

Sunday 19 August 2018
8:30 AM - 10:05 AM
Location: Conv. Ctr. Room 32B

Session Chair: [Prabhat Verma](#), Osaka Univ. (Japan)


Sub-nanometer tip-enhanced Raman spectroscopy integrated in a low temperature STM for the study on 1D/2D silicon nanostructures (*Invited Paper*)

Paper 10726-1
Time: 8:30 AM - 8:55 AM
Author(s): Kehui Wu, Institute of Physics (China)

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Vibrational properties of a monolayer silicene sheet studied by tip-enhanced Raman spectroscopy with spatial resolution of 0.5 nm (*Invited Paper*)

Paper 10726-2
Time: 8:55 AM - 9:20 AM
Author(s): Ping-Heng Tan, Institute of Semiconductors (China)


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In-operando SERS and TERS toward nanoscale detection of reaction intermediates (*Invited Paper*)

Paper 10726-3

Time: 9:20 AM - 9:45 AM


Author(s): Jonas Pfisterer, Ulmas E. Zhumaev, Katrin F. Domke, Max-Planck-Institut für Polymerforschung (Germany)

[Add To My Schedule](#) **Using infrared nanospectroscopy of the phonon resonance to locally quantify the electronic properties in doped SrTiO₃ ceramics**

Paper 10726-4

Time: 9:45 AM - 10:05 AM

Author(s): Martin Lewin, RWTH Aachen Univ. (Germany); Christoph Bäumer, Forschungszentrum Jülich GmbH (Germany); Alexander Schwedt, RWTH Aachen Univ. (Germany); Fabian Gaussmann, Jochen Wüppen, Fraunhofer-Institut für Lasertechnik (Germany); Paul Müffels, Forschungszentrum Jülich GmbH (Germany); Bernd Jungbluth, Fraunhofer-Institut für Lasertechnik (Germany); Joachim Mayer, RWTH Aachen Univ. (Germany); Regina Dittmann, Forschungszentrum Jülich GmbH (Germany); Rainer Waser, Forschungszentrum Jülich GmbH (Germany), RWTH Aachen Univ. (Germany); Thomas Taubner, RWTH Aachen Univ. (Germany)

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Coffee Break 10:05 AM - 10:35 AM

**Session 2:
Tip-Enhanced Raman Spectroscopy and Nanoscopy II**

Sunday 19 August 2018

10:35 AM - 12:10 PM


Location: Conv. Ctr. Room 32B

Session Chairs: [Prabhat Verma](#), Osaka Univ. (Japan) ; [Alexander Egner](#), Laser-Lab. Göttingen e.V. (Germany)**Tip-enhanced Raman scattering beyond chemical nanoscopy (Invited Paper)**

Paper 10726-5

Time: 10:35 AM - 11:00 AM


Author(s): Patrick El-Khoury, Pacific Northwest National Lab. (United States)

[Add To My Schedule](#) **Metallic tips for efficient plasmon nanofocusing and advanced optical nano-imaging (Invited Paper)**

Paper 10726-6

Time: 11:00 AM - 11:25 AM


Author(s): Takayuki Umakoshi, Osaka Univ. (Japan); Yuika Saito, Gakushuin Univ. (Japan); Prabhat Verma, Osaka Univ. (Japan)

[Add To My Schedule](#) **Tip-enhanced Raman spectroscopy applications: from graphene to heterogeneous catalysis (Invited Paper)**

Paper 10726-7

Time: 11:25 AM - 11:50 AM

Author(s): Naresh Kumar, National Physical Lab. (United Kingdom); Weitao Su, Hangzhou Dianzi Univ. (China); Fernando A. Castro, National Physical Lab. (United Kingdom); Bert M. Weckhuysen, Utrecht Univ. (Netherlands)

[Add To My Schedule](#) **On the nature of increased TERS/TEPL signal in wrinkles of 2D materials**

Paper 10726-8

Time: 11:50 AM - 12:10 PM

Author(s): Andrey Krayev, HORIBA Scientific (United States)

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Lunch Break 12:10 PM - 1:30 PM

**Session 3:
Microscopy and Nanoscopy: Fluorescence Imaging**

Sunday 19 August 2018

1:30 PM - 3:30 PM

Location: Conv. Ctr. Room 32B


Session Chair: Claudia Geisler, Laser-Lab. Göttingen e.V. (Germany)

Introducing a data-standard for fluorescence microscopy: increasing data quality and fidelity for biological measurements (Invited Paper)

Paper 10726-9

Time: 1:30 PM - 1:55 PM


Author(s): Maximiliaan Huisman, Mathias Hammer, Carlos Smith, David Grunwald, Univ. of Massachusetts Medical School (United States)

[Add To My Schedule](#) **Pupil phase engineering for axial localization measurements in Supercritical Angle Fluorescence (SAF) microscopy (Invited Paper)**

Paper 10726-10

Time: 1:55 PM - 2:20 PM

Author(s): Alexander Jesacher, Philipp Zelger, Klemens Kaser, Medizinische Univ. Innsbruck (Austria); Benedikt Rossboth, Lukas Velas, Gerhard Schütz, Technische Univ. Wien (Austria)


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Enhanced super-resolution microscopy by extreme value based emitter recovery *(Invited Paper)*

Paper 10726-11

Time: 2:20 PM - 2:45 PM

Author(s): Hongqiang Ma, Wei Jiang, Jianquan Xu, Yang Liu, Univ. of Pittsburgh (United States)

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Optimized single-mode waveguides for total internal reflection localization microscopy *(Invited Paper)*

(Canceled)

Paper 10726-12

Time: 2:45 PM - 3:10 PM


Author(s):

Overcoming the resolution barrier by STED microscopy

Paper 10726-13

Time: 3:10 PM - 3:30 PM

Author(s): Alexander Egner, Laser-Lab. Göttingen e.V. (Germany)

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Coffee Break 3:30 PM - 4:00 PM

Session 4: Micro- and Nano-Spectroscopy

Sunday 19 August 2018

4:00 PM - 5:50 PM

Location: Conv. Ctr. Room 32B


Session Chair: Patrick El Khoury, Pacific Northwest National Lab. (United States)

Towards understanding and engineering the properties of hybrid perovskites *(Invited Paper)*

Paper 10726-14

Time: 4:00 PM - 4:25 PM

Author(s): Ze Xiang Shen, Tingting Yin, Jiaxu Yan, Nanyang Technological Univ. (Singapore)


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Angstrom-scale plasmonic hot-spots: a spectroscopic existential proof and unusual photo-chemical activities *(Invited Paper)*

Paper 10726-15

Time: 4:25 PM - 4:50 PM

Author(s): Zee Hwan Kim, Seoul National Univ. (Korea, Republic of)


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Local heating effect study by photothermal imaging

Paper 10726-16

Time: 4:50 PM - 5:10 PM

Author(s): Zhicong Zeng, Zachary D. Schultz, The Ohio State Univ. (United States)


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New experimental techniques for nano-imaging and nano-spectroscopy based on compact laser plasma sources of soft x-rays and extreme ultraviolet

Paper 10726-17

Time: 5:10 PM - 5:30 PM

Author(s): Henryk Fiedorowicz, Przemyslaw Wachulak, Andrzej Bartnik, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland)


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Near-field imaging for tightly focused vector beams using nanoparticle-on-film structure

Paper 10726-18

Time: 5:30 PM - 5:50 PM

Author(s): Yang Aiping, Luping Du, Fanfei Meng, Xiacong Yuan, Shenzhen Univ. (China)

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Session Plen: Sunday Evening Plenary Session

Sunday 19 August 2018

6:00 PM - 7:05 PM

Location: Conv. Ctr. Ballroom 20A

6:00 to 6:05 pm: **Welcome and opening remarks**

6:05 to 6:35 pm: **Attosecond pulses generated in gases and solids**, Paul B. Corkum, Univ. of Ottawa and National Research Council of Canada (Canada)

6:35 to 7:05 pm: **Metasurface flat optics: unifying semiconductor manufacturing and lens making**, Federico Capasso, John A. Paulson School of Engineering and Applied Sciences, Harvard Univ. (United States)

Attosecond pulses generated in gases and solids (Conference Presentation) (Plenary Presentation)

Paper 10753-201

Time: 6:05 PM - 6:35 PM

Author(s): Paul B. Corkum, Univ. of Ottawa (Canada)


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Metasurface flat optics: Unifying semiconductor manufacturing and lens making (Conference Presentation) (Plenary Presentation)

Paper 10719-202

Time: 6:35 PM - 7:05 PM

Author(s): Federico Capasso, Harvard John A. Paulson School of Engineering and Applied Sciences (United States)

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MONDAY 20 AUGUST

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Session Plen: Nanoscience + Engineering Plenary Session

Monday 20 August 2018

8:30 AM - 12:00 PM

Location: Conv. Ctr. Ballroom 20A

Session Chairs: **Halina Rubinsztein-Dunlop**, The Univ. of Queensland (Australia) and **Mark L. Brongersma**, Geballe Lab. for Advanced Materials (GLAM), Stanford Univ. (USA)

Plasmonic nanostructures for molecular sensing and actuation (Conference Presentation) (Plenary Presentation)

Paper 10722-500

Time: 8:30 AM - 9:15 AM

Author(s): Mikael Käll, Chalmers Univ. of Technology (Sweden)

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Rapidly time-variant metadevices for linear frequency conversion (Conference Presentation) (Plenary Presentation)

Paper 10719-500

Time: 9:15 AM - 10:00 AM

Author(s): Bumki Min, KAIST (Korea, Republic of)

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Coffee Break 10:00 AM - 10:30 AM

Structured light on the nanoscale (Conference Presentation) (Plenary Presentation)

Paper 10730-500

Time: 10:30 AM - 11:15 AM

Author(s): Natalia M. Litchinitser, Univ. at Buffalo (United States)


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Wave control with "time materials" (Conference Presentation) (Plenary Presentation)

Paper 10719-501

Time: 11:15 AM - 12:00 PM

Author(s): Mathias Fink, Institut Langevin Ondes et Images (France)

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Lunch Break 12:00 PM - 1:30 PM

Session 5: Enhanced Spectroscopies

Monday 20 August 2018

1:30 PM - 3:05 PM

Location: Conv. Ctr. Room 32B

Session Chair: [Nan Jiang](#), Univ. of Illinois at Chicago (United States)

Probing membrane receptors with enhanced Raman imaging (Invited Paper)

Paper 10726-19

Time: 1:30 PM - 1:55 PM

Author(s): Lifu Xiao, Sian Sloan-Dennison, The Ohio State University (United States); Zachary D. Schultz, Univ. of Notre Dame (United States)


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Ultralow-loss field-enhanced spectroscopy using plasmonic and dielectric nanostructures *(Invited Paper)*

Paper 10726-20

Time: 1:55 PM - 2:20 PM


Author(s): Taka-aki Yano, Tokyo Institute of Technology (Japan)

[Add To My Schedule](#) **Ultra-narrow Raman Enhancement Factor (EF) distribution obtained from wafer-scale Nanogap-Enhanced Raman Scattering (NERS) substrates** *(Invited Paper)*

Paper 10726-21

Time: 2:20 PM - 2:45 PM

Author(s): Haemi Lee, Yung Doug Suh, Korea Research Institute of Chemical Technology (Korea, Republic of)

[Add To My Schedule](#) **Label-free super-resolution refractive index mapping based on surface plasmon resonance** **(Canceled)**

Paper 10726-22

Time: 2:45 PM - 3:05 PM

Author(s):

Coffee Break 3:05 PM - 3:35 PM**Session 6:
Microscopy and Nanoscopy: Near Field Imaging**

Monday 20 August 2018

3:35 PM - 5:05 PM


Location: Conv. Ctr. Room 32B

Session Chair: [Taka-aki Yano](#), Tokyo Institute of Technology (Japan)**Probing intermolecular interaction in self assembled monolayers on surfaces with ultrahigh vacuum tip-enhanced Raman spectroscopy** *(Invited Paper)*

Paper 10726-23

Time: 3:35 PM - 4:00 PM


Author(s): Nan Jiang, Univ. of Illinois at Chicago (United States)

[Add To My Schedule](#) **Local dehydrogenation on a self-assembled monolayer observed by tip-enhanced Raman spectroscopy** *(Invited Paper)*

Paper 10726-24

Time: 4:00 PM - 4:25 PM


Author(s): Songpol Chaunchaiyakul, RIKEN (Japan); Agung Setiadi, Osaka Univ. (Japan); Pawel Krukowski, Univ. of Lodz (Poland); Francesca Celine I. Catalan, RIKEN (Japan); Megumi Akai-Kasaya, Akira Saito, Osaka Univ. (Japan); Norihiko Hayazawa, Yousoo Kim, RIKEN (Japan); Hideji Osuga, Wakayama Univ. (Japan); Yuji Kuwahara, Osaka Univ. (Japan)

[Add To My Schedule](#) **Low-frequency Raman imaging of MoS₂**

Paper 10726-25

Time: 4:25 PM - 4:45 PM


Author(s): Rhea Thankam Sam, Takayuki Umakoshi, Prabhat Verma, Osaka Univ. (Japan)

[Add To My Schedule](#) **Near-field imaging of exciton complexes of monolayer MoS₂ with chemical treatment**

Paper 10726-26

Time: 4:45 PM - 5:05 PM

Author(s): YoungBum Kim, Yongjun Lee, Shrawan Roy, Jeongyong Kim, Sungkyunkwan Univ. (Korea, Republic of)

[Add To My Schedule](#) **Session PMon:
Posters-Monday**

Monday 20 August 2018

5:30 PM - 7:30 PM

Location: Conv. Ctr. Room 20C


Conference attendees are invited to attend the poster session on Monday 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 at <http://spie.org/x30293.xml>.

A numerical method to reconstruct internal structures with a laser ultrasonic technique

Paper 10726-37

Time: 5:30 PM - 7:30 PM

Author(s): Hiroshi Ohno, Toshiba Corp. (Japan)

[Add To My Schedule](#) **System 3D Jones-matrix polarimetry of polycrystalline films of biological fluids**

Paper 10726-38

Time: 5:30 PM - 7:30 PM


Author(s): Alexander Ushenko, Viktor Zhytaryuk, M. I. Sidor, Yuriy Fedkovych Chernivtsi National Univ. (Ukraine); O. Ya. Wanchulyak, Bukovinian State Medical Univ. (Ukraine); A. V. Motrich, I. V. Soltys, Yuriy Fedkovych Chernivtsi National Univ. (Ukraine); O. V. Pavliukovich, N. Pavliukovich, Bukovinian State Medical Univ. (Ukraine)

[Add To My Schedule](#) **Influences of metal cladding in tip-enhanced Raman spectroscopy**

Paper 10726-39

Time: 5:30 PM - 7:30 PM


Author(s): LiWei Cao, YuQuan Zhang, Shenzhen Univ. (China)

[Add To My Schedule](#) **Interferometric scattering (iSCAT) microscopy for high fidelity tracking at microseconds timescales**

Paper 10726-40

Time: 5:30 PM - 7:30 PM


Author(s): Lukasz Bujak, Marek Piliarik, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

[Add To My Schedule](#) **Common-path digital holographic microscopy for 3D nanoparticle localization**

Paper 10726-41

Time: 5:30 PM - 7:30 PM


Author(s): Krisztian Neutsch, Lena Göring, Nils C. Gerhardt, Ruhr-Univ. Bochum (Germany)

[Add To My Schedule](#) **Molecular orientation analysis in organic thin-film transistor device by polarized Raman microscopy**

Paper 10726-42

Time: 5:30 PM - 7:30 PM


Author(s): Takeshi Sugiyama, Bishwajeet Singh Bhardwaj, Takayuki Umakoshi, Naoko Namba, Takafumi Uemura, Tsuyoshi Sekitani, Prabhat Verma, Osaka Univ. (Japan)

[Add To My Schedule](#) **Highly sensitive surface-enhanced Raman scattering detection of brodifacoum and 1080 rodenticide in milk**

Paper 10726-43

Time: 5:30 PM - 7:30 PM


Author(s): Megha Mehta, Mark R. Waterland, Massey Univ. (New Zealand)

[Add To My Schedule](#) **Revealing subcellular structures with live-cell and 3D fluorescence nanoscopy**

Paper 10726-44

Time: 5:30 PM - 7:30 PM


Author(s): Fang Huang, Purdue Univ. (United States)

[Add To My Schedule](#) **Single-molecule nanoscopy along oblique planes through thick biological samples**

Paper 10726-45

Time: 5:30 PM - 7:30 PM


Author(s): Jeongmin Kim, Univ of California Berkeley (United States); Michal Wojcik, Univ. of California, Berkeley (United States); Yuan Wang, Univ. of California, Berkeley (United States), Lawrence Berkeley National Lab. (United States); Ke Xu, Univ. of California, Berkeley (United States), Lawrence Berkeley National Lab. (United States), Chan Zuckerberg Biohub (United States); Xiang Zhang, Univ. of California, Berkeley (United States), Lawrence Berkeley National Lab. (United States)

[Add To My Schedule](#) **Time-resolved ultramicroscope imaging of nano/micro-structured surfaces melting and solidification femtosecond dynamics**

Paper 10726-46

Time: 5:30 PM - 7:30 PM


Author(s): Mohamed El Kabbash, Chunlei Guo, Ran Ran Fang, Subhash Singh, Anatoliy Y. Vorobyev, Univ. of Rochester (United States)

[Add To My Schedule](#) **Tip-enhanced stimulated Raman scattering with ultra-high-aspect-ratio tips and confocal polarization Raman spectroscopy for evaluation of sidewalls in Type II superlattices FPAs**

Paper 10726-47

Time: 5:30 PM - 7:30 PM

Author(s): Fei H. Chu, Gennady A. Smolyakov, Chih-Feng Wang, Yopuggjan Gao, Chengao Wang, Actoprobe LLC (United States); Kevin J. Malloy, University of New Mexico (United States); Alexander A. Ukhanov, Actoprobe LLC (United States); Douglas V. Pete, Sandia National Laboratory (United States); Jaime-Vasquez Marvin, Night Vision Directorate, US Army (United States); Neil F. Baril, David J. Benson, U.S. Army Engineer Research and Development Ctr. (United States); Dmitri A. Tenne, Boise State University (United States)

[Add To My Schedule](#) **TUESDAY 21 AUGUST**[Show All Abstracts](#)


Session 7: Microscopy and Nanoscopy: Fluorescence-Free Imaging

Tuesday 21 August 2018
8:10 AM - 10:05 AM
Location: Conv. Ctr. Room 32B

Session Chair: [Alexander Egner](#), Laser-Lab. Göttingen e.V. (Germany)

New perspectives in wide field imaging *(Invited Paper)*

Paper 10726-27
Time: 8:10 AM - 8:35 AM
Author(s): Kishan Dholakia, Univ. of St. Andrews (United Kingdom)


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High-speed, high resolution, multi-color imaging of living cells and tissues using MUSICAL *(Invited Paper)* (Canceled)

Paper 10726-28
Time: 8:35 AM - 9:00 AM
Author(s):


Nanoscale magnetic imaging using quantum defects in diamond *(Invited Paper)*

Paper 10726-29
Time: 9:00 AM - 9:25 AM
Author(s): Ronald L. Walsworth, Harvard-Smithsonian Ctr. for Astrophysics (United States)

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Modeling superresolution reflection microscopy via absorbance modulation

Paper 10726-30
Time: 9:25 AM - 9:45 AM
Author(s): Robert Kowarsch, Technische Univ. Clausthal (Germany); Claudia Geisler, Alexander Egner, Laser-Lab. Göttingen e.V. (Germany); Christian Rembe, Technische Univ. Clausthal (Germany)

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Coffee Break 10:05 AM - 10:40 AM


Session 8: Nano-Bio Spectroscopy and Imaging

Tuesday 21 August 2018
10:40 AM - 12:30 PM
Location: Conv. Ctr. Room 32B

Session Chair: [Takayuki Umakoshi](#), Osaka Univ. (Japan)

Structure of toxic oligomers from Ab1-42 peptide probed at the nanometer scale by TERS and NanoIR and interaction with membrane *(Invited Paper)*

Paper 10726-32
Time: 10:40 AM - 11:05 AM
Author(s): Sébastien Bonhommeau, Institut des Sciences Moléculaires (France); Sarah Henry, Institut de Chimie et de Biologie des Membranes et des Nanoobjects (France); David Talaga, Institut des Sciences Moléculaires (France); Christophe Cullin, Institut de Chimie et de Biologie des Membranes et des Nanoobjects (France); Michael Molinari, Univ. de Reims Champagne-Ardenne (France); Sophie Lecomte, Ctr. National de la Recherche Scientifique (France)

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TERS of fragile samples: mechanism of photo-induced damage and study of biomimetic membranes *(Invited Paper)*

Paper 10726-33
Time: 11:05 AM - 11:30 AM
Author(s): Guillaume Goubert, Giovanni Luca Bartolomeo, Timo Niepel, Amit Sachan, Feng Shao, Jacek Szczerbiński, Liqing Zheng, Renato Zenobi, ETH Zurich (Switzerland)

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Visualizing local electric field with tip-enhanced Raman spectroscopy

Paper 10726-34
Time: 11:30 AM - 11:50 AM
Author(s): Ashish Bhattarai, Alan G. Joly, Wayne P. Hess, Patrick El-Khoury, Pacific Northwest National Lab. (United States)

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Colloidal quantum dots conjugated with human serum albumin: interactions and bioimaging properties

Paper 10726-35
Time: 11:50 AM - 12:10 PM
Author(s): Eugen Sheregii, Renata Wojnarowska-Nowak, Slawomir Nowak, Jacek Polit, Univ. of Rzeszow (Poland); Ihor Stolyarchuk, Drohobych Ivan Franko State Pedagogical Univ. (Ukraine)

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Biological applications of localized plasmonic structured illumination microscopy

Paper 10726-36

Time: 12:10 PM - 12:30 PM

Author(s): Junxiang Zhao, Anna Bezryadina, Univ. of California, San Diego (United States); Yang Xia, Univ. of California, Berkeley (United States); Gary C. H. Mo, Univ. of California, San Diego (United States); Xiang Zhang, Univ. of California, Berkeley (United States); Jin Zhang, Zhaowei Liu, Univ. of California, San Diego (United States)

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