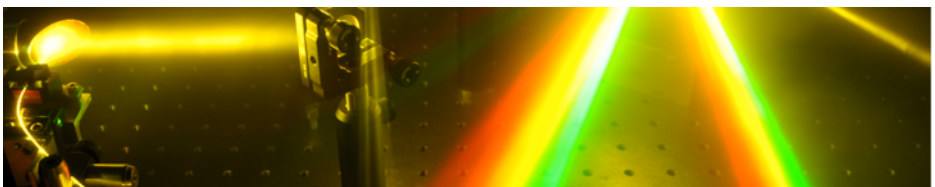


 Photonics Finland

# Optics & Photonics Days 2016

Hotel Tornii, Tampere

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Goëry Genty  
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# Optics & Photonics Days 2016

Hotel Tornio, Tampere

Monday, May 16

18:00-20:00 Get-together event (Registration starts at 17:40)

Tuesday, May 17

9:00 Registration

9:45 **Plenary - Guglielmo Lanzani: The organic approach toward an artificial retina**

10:30 Exhibiting companies' pitch session, 2 min / company

10:50 Short break

11:00 Academic session - **Ultra-fast measurement techniques**

Industrial session - **Virtual Reality:** Nokia, Microsoft, Mindfield Games, Dispelix, Vizor

12:30 Lunch

13:30 Academic session - **Nonlinear optics and applications**

Industrial session - **Photonics in medicine:** Iogen, NKT Photonics, Labrox, ArcDia International

15:00 Poster session 1 & Coffee

16:00 Academic session - **Optical materials and nanostructures**

Industrial session - **Optical measurement technologies:** Gasera, Spectral Engines, Vaisala, Specim, Noptel, Comsol

18:00-19:30 Annual meeting of Photonics Finland

20:00 Conference dinner

Wednesday, May 18

9:30 **Plenary - Fengnian Xia: Two-dimensional material optoelectronics and electronics**

10:30 Coffee break

11:00 Academic session - **Tailored laser sources and applications**

Industrial session - **Manufacturing technologies:** Rosendahl Nextrom, Millog, Greenfox, VTT / MIKES, Oplatek Group

12:30 Lunch

13:30 Poster session 2 & Coffee

14:30 Academic session - **Optical measurements and devices**

16:00 Closing

**Tuesday, May 17**

9:00 Registration

9:45 **Plenary - The organic approach toward an artificial retina**

Guglielmo Lanzani, Politecnico di Milano

Chair: Goëry Genty

10:30 Exhibiting companies' pitch session, 2 min / company, Chair: Pekka Savolainen

10:50 Short break

11:00 Academic session - **Ultra-fast measurement techniques**

Chair: Goëry Genty

11:00 - 11:30

**Invited - Imaging at the speed of light**

Daniele Faccio, Heriot-Watt University

11:30 - 11:45

**Temporal Ghost Imaging with Magnification**

Piotr Ryczkowski, Tampere University of Technology

11:45 - 12:00

**Double Resonant Absorption Measurement of Acetylene Symmetric States, Probed with Optical Frequency Comb Referenced Cavity Ring-down Spectroscopy**

Juho Karhu, University of Helsinki

12:00 - 12:15

**Real Time Measurements of Optical Rogue Waves**

Mikko Närhi, Tampere University of Technology

12:15 - 12:30

**Spectral and temporal coherence of free-electron lasers**

Lutful Ahad, University of Eastern Finland

11:00 Industrial session - **Virtual Reality**

Chair: Veli-Pekka Leppänen

11:00 - 11:20

**Imaging optics systems for virtual reality applications**

Jyrki Kimmel, Nokia

11:20 - 11:40

**Microsoft HoloLens**

Tapani Levola, Microsoft

11:40 - 12:00

**Virtual Reality Games from Finland**

Antti Veräjänkorpi, Mindfield Games

12:00 - 12:15

**Near-to-the-eye displays (AR)**

Antti Sunnari, Dispelix

12:15 - 12:30

**WebVR – Virtual reality in web browser**

Antti Jäderholm, Vizor

12:30 Lunch

## Tuesday, May 17

### 13:30 Academic session - **Nonlinear optics and applications**

Chair: Tapio Niemi

13:30 - 14:00

#### **Invited - Nonlinear and quantum phenomena in WGM crystalline resonators**

Yanne Chembo, FEMTO-ST Institute

14:00 - 14:15

#### **Frequency-quadrupled vertical-external-cavity surface-emitting lasers for quantum information processing with trapped ions**

Tomi Leinonen, Tampere University of Technology

14:15 - 14:30

#### **Anisotropic nonlinearity in black phosphorus and its application for ultrafast lasers**

Diao Li, Aalto University

14:30 - 14:45

#### **Fully stabilized infrared frequency comb by femtosecond half-harmonic generation**

Markku Vainio, University of Helsinki

14:45 - 15:00

#### **Surface-lattice resonances in second-harmonic generation from arrays of metal nanoparticles**

Robert Czaplicki, Tampere University of Technology

### 13:30 Industrial session - **Photonics in medicine**

Chair: Pekka Savolainen

13:30 - 13:50

#### **Photonics in ophthalmology**

Tero Rinne, Iogen

13:50 - 14:10

#### **Ultrafast fiber lasers in life science applications**

Asger Jensen, NKT Photonics

14:10 - 14:30

#### **Developing rapid and sensitive diagnostic devices using novel Upcon technology**

Ida Erling, Labrox

14:30 - 14:45

#### **Two-photon excitation technology in rapid infectious diseases diagnostics**

Niko Porjo, ArcDia International

14:45 - 15:00

#### **Photoimmunotherapy in oncology**

Petteri Uusimaa, Modulight

15:00 Poster session 1 & Coffee

#### **T1. A study in waveguide design for light-matter interaction assisted by slow light**

Xiaorun Zang, Tampere University of Technology

#### **T2. Nanostructures for photonics using block copolymers**

Hanna Hulkkonen, Tampere University of Technology

#### **T3. Single shot spectral measurements of supercontinuum light**

Mira Tengvall, Tampere University of Technology

#### **T4. Holographic patterning of microstructures comprising silver nanoclusters**

Puskal Kunwar, Tampere University of Technology

#### **T5. Electrical isolation of dilute nitride solar cells by wet etching**

Marianna Raappana, Tampere University of Technology

- T6. Nonlocality and breather solitons**  
Alessandro Alberucci, Tampere University of Technology
- T7. High-power 1180 nm DBR-lasers with GaInNAs quantum wells for second harmonic generation**  
Heikki Virtanen, Tampere University of Technology
- T8. Photoluminescence properties of novel GaAsBi compounds fabricated by molecular beam epitaxy**  
Joonas Hilska, Tampere University of Technology
- T9. Second-Harmonic Generation from Metasurfaces Enhanced by Reduced Particle Density**  
Antti Kiviniemi, Tampere University of Technology
- T10. Electrical contacts on GaAs nanowires**  
Marcelo Rizzo Piton, Tampere University of Technology
- T11. Light coupling into planar waveguides by plasmonic nanoparticles**  
Janne Simonen, University of Jyväskylä
- T12. Self-Organized Growth of Plasmonic Molecules on the Surface of Ion-Exchanged Glass**  
Igor Reduto, University of Eastern Finland
- T13. High-resolution x-ray diffraction and photoluminescence study of high-quality self-catalyzed GaAs nanowires**  
Eero Koivusalo, Tampere University of Technology
- T14. Photoexcitation and electron transfer at inorganic–organic interface — a DFT approach**  
Mika Niskanen, Imperial College London
- T15. Fabrication and second-harmonic generation imaging of spatially-oriented individual ion-shaped nanoparticles**  
Abdallah Slablab, Tampere University of Technology
- T16. Recognition of multipolar second-harmonic generation from thin films**  
Kalle Koskinen, Tampere University of Technology
- T17. Cascaded quadratic nonlinearity harnessed to frequency comb generation**  
Ville Ulvila, University of Helsinki
- T18. Increasing the quantum efficiency of GaInNAs solar cells by advanced optical design**  
Timo Aho, Tampere University of Technology
- T19. Dots-on-the-fly electron beam lithography**  
Tero Isotalo, Tampere University of Technology
- T20. High efficiency multijunction solar cells: Electrical and optical properties of the dilute nitride sub-junctions**  
Ville Polojärvi, Tampere University of Technology
- T21. Spontaneous symmetry breaking via reorientational nonlinearity**  
Alessandro Alberucci, Tampere University of Technology
- T22. Atomic layer deposition of Er-doped Al<sub>2</sub>O<sub>3</sub> for integrated waveguide amplifier devices**  
John Rönn, Aalto University

**T23. Difference frequency modulation and mode stability characteristics in multi-section dual-mode distributed feedback quantum well lasers**

Topi Uusitalo, Tampere University of Technology

**T24. Deterministic Lambertian Sources**

Bernhard J. Hoenders, University of Groningen

**Tuesday, May 17**

16:00 Academic session - **Optical materials and nanostructures**

Chair: Martti Kauranen

16:00 - 16:30

**Invited - Interactions and coherence properties of organic polaritons in all-dielectric microcavities**

Konstantinos Daskalakis, Aalto university

16:30 - 16:45

**Engineered nanomaterials and photon management for photoelectrochemical water splitting**

Turkka Salminen, Tampere university of technology

16:45 - 17:00

**Multiphoton microscopy of mono- and few-layer MX<sub>2</sub> (M=Mo,W; X=S,Se)**

Anton Autere, Aalto University

17:00 - 17:15

**High-efficiency III-V solar cells: From drawing board to real devices**

Antti Tukiainen, Tampere University of Technology

17:15 - 17:30

**Modeling the spectral shape and junction temperature of InGaAlP-based red light-emitting diodes**

Anna Vaskuri, Aalto University

17:30 - 18:00

**Invited - Generating high intensity optical fields with hybrid-gap plasmons**

Rupert Oulton, Imperial College London

16:00 Industrial session – **Optical measurement technologies**

Chair: Heikki Turtiainen

16:00 - 16:30

**Photonics for High-End Gas Analysis**

Ismo Kauppinen, Gasera

16:30 - 16:45

**Future material sensing**

Jarkko Antila, Spectral Engines

16:45 - 17:00

**CARBOCAP® technology: 20 years of stable industrial measurements**

Timo Venäläinen, Vaisala

17:00 - 17:15

**Hyperspectral imaging in real life applications**

Jouni Jussila, Specim

17:15 - 17:30

**Laser rangefinder in traffic control applications**

Jukka Pahkala, Noptel

17:30 - 17:45

**Simulation of Optical Measurement Devices**

Patrick Grahn, Comsol

18:00-19:30 Annual meeting of Photonics Finland

20:00 Conference dinner

Wednesday, May 18

9:30 **Plenary - Two-dimensional material optoelectronics and electronics**

Fengnian Xia, Yale University

Chair: Harri Lipsanen

10:30 Coffee break

11:00 Academic session - **Tailored laser sources and applications**

Chair: Markku Vainio

11:00 - 11:30

**Invited - Modeling and generation of random beams with azimuthal symmetry**

Olga Korotkova, University of Miami

11:30 - 11:45

**Role of the input beam parameters on nematonic excitation**

Nazanin Karimi, Tampere University of Technology

11:45 - 12:00

**Nonlinear microscopy of nano-objects using spatially engineered phase jumps**

Léo Turquet, Tampere University of Technology

12:00 - 12:15

**Time-gated Raman spectroscopy: A powerful tool for research and other applications**

Lauri Kurki, TimeGate Instruments Oy

12:15 - 12:30

**Towards commercially viable high brightness red lasers: multi-watt flip-chip VECSEL emitting at 1250 nm**

Jussi-Pekka Penttinen, Tampere University of Technology

11:00 Industrial session - **Manufacturing technologies**

Chair: Jyrki Saarinen

11:00 - 11:20

**Developments in Optical Fiber Manufacturing**

Kevin Boll, Rosendahl Nextrom

11:20 - 11:40

**Thin Film Coating in Optics**

Olli Herranen, Millog

11:40 - 12:00

**Tooling and injection molding of fresnel and freeform optics**

Jyrki Gröhn, Greenfox

12:00 - 12:15

**Metrology for Photonics Manufacture**

Antti Lassila, VTT / MIKES

12:15 - 12:30

**Glass Molding in Optics**

Jyrki Huttunen, Oplatek Group

12:30 Lunch

13:30 Poster session 2 & Coffee

**W1. MetHPM: Optical metrology for highly parallel manufacturing**

Jeremias Seppä, VTT Technical Research Centre of Finland Ltd

**W2. Optical radon detector**

Johan Sand, STUK - Radiation and Nuclear Safety Authority

**W3. Counteracting nematonic fluctuations via partial polymerization**

Nazanin Karimi, Tampere University of Technology



- W4. Determination of optical losses of the predictable quantum efficient detector without direct measurement of reflectance**  
Meelis-Mait Sildoja, Aalto University
- W5. Elemental analysis of single particles in precisely controlled trap using laser-induced breakdown spectroscopy and application to water and bioaerosol monitoring**  
Samu Järvinen, Tampere University of Technology
- W6. Vector-field nonlinear microscopy of plasmonic oligomers**  
Godofredo Bautista, Tampere University of Technology
- W7. 3D printed freeform optics for specific target irradiance distributions**  
Bisrat Girma Assefa, University of Eastern Finland
- W8. A quantum cascade laser based open-path spectrometer for ammonia detection**  
Jari Peltola, VTT Technical Research Centre of Finland Ltd
- W9. Measurement and modelling of laser scattering from transversely illuminated optical fibres**  
Maksim Shpak, MIKES Metrology, VTT Technical Research Centre of Finland Ltd
- W10. Characterization of Tapered Fibers with High Birefringence**  
Joonas Rissanen, Tampere University of Technology
- W11. Single microparticle scattering detection based on edge-filter enhanced self-mixing interferometry**  
Juha Toivonen, Tampere University of Technology
- W12. Compact, Real-time Analyser for C-13 and O-18 Isotope Ratios of Carbon Dioxide in Breath Air**  
Teemu Kääriäinen, VTT Technical Research Centre of Finland Ltd
- W13. Ultrafast bismuth fiber laser operating at 1440 nm wavelength**  
Teppo Noronen, Tampere University of Technology
- W14. High-power tapered distributed Bragg reflector laser diodes emitting at 1550 nm**  
Antti Aho, Tampere University of Technology
- W15. Laser spectroscopic investigation into biochemical pathways of breath ammonia (NH<sub>3</sub>) generation in end-stage renal disease patients undergoing hemodialysis**  
Markus Metsälä, University of Helsinki
- W16. High power GaSb-based superluminescent diodes for 2-3  $\mu\text{m}$  spectral region**  
Soile Suomalainen, Tampere University of Technology
- W17. Radioluminescence of Alpha-Particle Excited Gases in Deep Ultraviolet Regime**  
Thomas Kerst, Tampere University of Technology
- W18. Graphene-MoS<sub>2</sub>-Metal Hybrid Structure Based Surface Plasmon Resonance Biosensors**  
Sinan Aksimsek, Aalto University
- W19. Bacteria detection on disposable SERS substrates with gold nanoparticles**  
Sanna Uusitalo, VTT Technical Research Centre of Finland Ltd

**W20. Mid-infrared spectroscopy with frequency upconversion detector**

Kim Patokoski, Tampere University of Technology

**W21. Multi-component gas detection using mid-infrared supercontinuum source**

Caroline Amiot, Tampere University of Technology

**W22. Photoplethysmographic wave decomposition and principal component analysis**

Matti Huotari, University of Oulu

**W23. Dilute Nitride Multijunction Cells: Recent progress and Future Outlook**

Arto Aho, Tampere University of Technology

**W24. Wavelet prism decomposition analysis for accurate quantitative extraction of resonant vibrational responses from CARS spectra**

Erik Vartiainen, Lappeenranta University of Technology

**W25. Intelligent lighting and thermal comfort technologies for care services of home-dwelling elderly people with memory disorder**

Sami Siikanen, VTT Technical Research Centre of Finland

**W26. Measurement of the integrated degree of temporal coherence for femtosecond pulse trains**

Rahul Dutta, University of Eastern Finland

**Wednesday, May 18**

14:30 Academic session - **Optical measurements and devices**

Chair: Juha Toivonen

14:30 - 15:00

**Invited - Towards All-optical Light Robotics**

Jesper Glückstad, DTU Fotonik, Technical University of Denmark

15:00 - 15:15

**Various integrated interferometers for low-cost sensor application**

Marianne Hiltunen, VTT Technical Research Centre of Finland

15:15 - 15:30

**Optical humidity sensing based on isomerization kinetics of azobenzenes**

Mikko Poutanen, Aalto University

15:30 - 15:45

**Photo-acoustic microscopy for high-resolution in vivo imaging**

Elena Tcarenkova, University of Turku

15:45 - 16:00

**Laser measurement of K, KCl, KOH, O<sub>2</sub> and flame temperature in single particle reactor**

Jan Viljanen, Tampere University of Technology

16:00 - 16:10 Closing



## Exhibitors at Optics & Photonics Days 2016

