

# Fourth International Conference on Optical, Optoelectronic and Photonic Materials and Applications

August 15-20, 2010 | Budapest, Hungary



## Welcome to ICOOPMA 2010, Budapest!

On Monday August 16, Mark Kuzyk's Plenary Lecture at ICOOPMA 2010 in Budapest was interrupted by a lightning strike that resulted in a region-wide power failure. » [Click here to get this presentation.](#)



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We would like to welcome all of experts and attendees from different countries in the world to ICOOPMA 2010, which will be held on August 15th-20th, 2010 in Budapest, Hungary. We have great honor to organize the International Conference on Optical, Optoelectronic and Photonic Materials and Applications (also known as International Conference on Optical and Optoelectronic Properties of Materials and Applications) which is the fourth in the prestigious ICOOPMA series. The first one was held in Darwin, Australia, in July 2006 and covered a wide range of materials and applications in optics, optoelectronics and photonics. The Second ICOOPMA was held in London, England, 29 July - 3 August, 2007, and the third one in Edmonton, Canada, 20-25 July, 2008. We hope to follow the best traditions of this series and provide discussions between researchers working on different classes of materials that have similar applications or have been characterized by similar techniques.

There are 307 papers accepted for presentation at ICOOPMA 2010, contributed by over 289 authors from more than 30 countries, including Japan, United States, United Kingdom, Canada, Germany, France, Italy, Spain, Russia, Ukraine, Brazil, China, Korea, India, New Zealand and Australia. We have 6 international famous scientists and experts as plenary speakers as well as 48 invited speakers.

We extend our warmest greetings to you and hope you will have a rewarding and exciting stay in Budapest during ICOOPMA 2010.

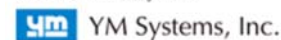
Sandor Kugler and Sandor Kokenyesi  
Conference Chairs



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## About ICOOPMA

ICOOPMA 2010 is the fourth in the prestigious ICOOPMA series, an International Conference on Optical, Optoelectronic and Photonic Materials and Applications, also known as International Conference on Optical and Optoelectronic Properties of Materials and Applications.

The ICOOPMA Series arose from a need for such a conference for those researchers who sought a truly international conference that covered a wide range of materials and applications in optics, optoelectronics and photonics. One of the goals is to provide discussions between researchers working on different classes of materials that have similar applications; or have been characterized by similar techniques.

The conference has a large number of invited speakers to allow such cross-fertilization between researchers working in different classes of materials. The conference also seeks papers in interesting or novel applications, or papers that enhance material properties for applications.

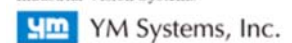
The International and Local Organizing Committees have the responsibility of ensuring an in-depth scientific coverage with invited and contributed papers from various countries and in various disciplines; and ensuring an enjoyable scientific program.



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## Scope of the conference

Optical and optoelectronic properties of a wide range of materials and materials systems, such as single crystals, polycrystalline bulk and film samples, amorphous materials, glasses, organics, polymers, photonic crystals and nanostructures, quantum wells, wires and dots

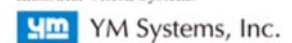
- Excitonic processes
- Luminescence, Phosphors and Applications
- Photoinduced effects
- Electro-optic properties and applications
- Nonlinear optical properties and applications
- Materials for optoelectronics and photonics
- Nano-optoelectronics and Nanophotonics
- Photoconductivity
- Optically induced processes
- Optical fibers
- Materials for optical storage
- Photovoltaic materials
- Photogeneration, quantum efficiency
- Experimental techniques
- Terahertz materials, devices and techniques
- Optoelectronic and photonic devices
- Optical components for telecommunications
- Modeling and Simulations
- Applications of materials in photonics and optoelectronics



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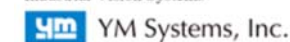
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# Fourth International Conference on Optical, Optoelectronic and Photonic Materials and Applications

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## Plenary Talks



**Michael Petty**

Durham University, UK

Electronic and Opto-Electronic Devices Based on Thin Organic Films

» [see bio](#) » [book link](#)



**Mark Kuzyk**

Washington State University, USA

Reversing the Arrow of Time via Photonics Using Polymer-Dye Interactions

» [see bio](#)



**Norbert Kroo**

Hungarian Academy of Sciences, Budapest, Hungary

There is light at the bottom

» [see bio](#)



**Stephan Koch**

Philipps University Marburg (Germany)

Microscopic simulation of semiconductor laser devices

» [see bio](#)



**Hideo Hosono**

Tokyo Institute of Technology (Japan)

Doping Issues for Optoelectronic Transparent Crystalline and Amorphous Oxides

» [see bio](#)



**Thomas Krauss**

University of St. Andrews (UK)

Enhanced light-matter interaction with photonic nanostructures

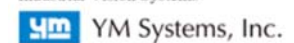
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## Invited Speakers

confirmed by March 31, 2010

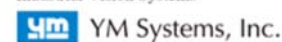
- Jean-Luc Adam**  
Universite de Rennes (France)  
Chalcogenide glass photonic crystal fibers
- Valery Barachevsky**  
Russian Academy of Sciences, Moscow (Russia)  
Light-sensitive organic recording media for 3D optical memory
- Sergei Baranovski**  
Philipps University Marburg (Germany)  
Generalized Onsager-Frenkel recombination of optically generated electron-hole pairs
- Nikolay Dmitruk**  
ISP NAS Ukraine, Kijev (Ukraine)  
Plasmonic photovoltaics: relief-induced transparency & photocurrent enhancement by metal nanoparticles on solar cell interface
- Andrew Edgar**  
Victoria University of Wellington (New Zealand)  
New Materials and Structures for Optical Detection of Ionising Radiation
- Stephen Elliott**  
University of Cambridge (UK)  
Recent result of phase-change memory
- Harold Haugen**  
McMaster University, Hamilton (Canada)  
Femtosecond Laser Ablation and Micromachining of Semiconductors and Dielectrics
- Jong Heo**  
Pohang University of Science and Technology (Korea)  
Multiphase Semiconductor Quantum Dots in Glasses
- Animesh Jha and Gin Jose**  
University of Leeds (UK)  
Rare-earth doped tellurite glass near and mid-IR fibre lasers
- Andrew Knights**  
McMaster University, Hamilton (Canada)  
Sub-micron Silicon Photonic Device Structures
- Joseph Salzman**  
Israel Institute of Technology, Haifa (Israel)  
Nano-cavities in Diamond for Quantum Electrodynamics Experiments
- Krisztian Kohary**  
University of Exeter (UK)  
Crystallisation kinetics of phase-change materials
- Giancarlo Righini and Simone Berneschi**  
CNR, Institute of Applied Physics, Firenze and Institute of Photonics & Nanotechnologies, Trento (Italy)  
Erbium-doped glass-ceramic materials and waveguides
- Roger Lewis**  
University of Wollongong (Australia)  
Optical Rectification for Terahertz Generation
- David Lockwood**  
NRC, Ottawa (Canada)  
Self-assembled silicon-germanium nanostructures for CMOS compatible light emitters
- Pal Andor Maak**  
Budapest University of Technology and Economics (Hungary)  
Novel acousto-optic devices targeting applications of high standard
- Maria Mitkova**  
Boise State University, Idaho (USA)  
Optically induced processes in chalcogenide glasses - from visible light to x-rays



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18. **Kazuo Morigaki** University of Tokyo (Japan) and  
**Harumi Hikita** Meikai University, Chiba (Japan)  
Stretched Exponential Relaxation Processes in Hydrogenated Amorphous Silicon and Hydrogenated Polymorphous Silicon
19. **Hiroyoshi Naito**  
Osaka Prefecture University (Japan)  
Localized-state distributions and charge carrier mobilities of organic bulk heterojunction solar cells
20. **Arokia Nathan**  
University College London University (UK)  
Advances in Nanocrystalline Silicon Devices for Optoelectronics Applications
21. **Diana Nesheva**  
Bulgarian Academy of Sciences, Sophia (Bulgaria)  
Photoluminescence from SiO<sub>x</sub> layers containing amorphous silicon nanoparticles
22. **Annie Pradel**  
Université Montpellier (France)  
IR waveguide based upon chalcogenide thick films deposited by co-thermal evaporation
23. **Victor Ralchenko**  
Prokhorov General Physics Institute RAS (Russia)  
Chemical vapor deposited (CVD) diamond - the material for optics and optoelectronics
24. **Ramaswami Sammynaiken**  
University of Saskatchewan (Canada)  
Secondary optical processes and application of x-ray excited optical luminescence in medicine
25. **Jai Singh**  
Charles Darwin University (Australia)  
Advances in organic and polymeric light emitting devices
26. **Oleh Shpotyuk**  
Institute of Materials of SRC, "Karat", Lviv (Ukraine)  
Pseudo-self-adaptive topological phases in glassy selenides for IR photonics
27. **Stephen Sweeney**  
University of Surrey (UK)  
Novel III-V semiconductors for next generation photonic devices
28. **Keiji Tanaka**  
Hokkaido University (Japan)  
Photodeformations in As<sub>2</sub>S<sub>3</sub>: from atomic, nano, to macroscopic
29. **Janis Teteris**  
University of Latvia, Riga (Latvia)  
Photoinduced Mass Transfer in Soft Materials
30. **Heinz von Seggern**  
University of Darmstadt (Germany)  
Oxygen in CsBr:Eu, its influence on photostimulated luminescence
31. **Rui Almeida**  
Instituto Superior Tecnico, Lisbon (Portugal)  
Properties and applications of sol-gel derived active photonic crystals
32. **Lluís Marsal**  
Universitat Rovira i Virgili (Spain)  
Template-assisted fabrication and characterization of photoluminescent conducting polymer nanopillars
33. **Lorenzo Pavesi and Paolo Bettotti**  
University of Trento (Italy)  
Nanosilicon: a new platform for photonics
34. **Emanuele Pelucci**  
Tyndall National Institute (Ireland)  
Fabrication and Characteristics of Site-controlled (111)B quantum dots by high purity MOVPE
35. **Robert Horvath**  
Research Institute for Technical Physics and Materials Science, Budapest (Hungary)  
Optical waveguide biosensors for proteins and cells
36. **Harry Ruda**  
University of Toronto (Canada)  
Toward fundamental limits on the optoelectronic characteristics of single nanowires
37. **Janos Volk**  
Research Institute for Technical Physics and Materials Science, Hungarian Academy of Sciences, Budapest (Hungary)  
Highly ordered ZnO nanostructures for UV photonic devices
38. **Janos Veres**  
PolyPhotonix (UK)  
Organic semiconductors and light emitting diodes in applications
39. **Darren Bagnall**  
University of Southampton University (UK)  
Plasmonic and photonic light-trapping for photovoltaics
40. **Andriy Kryuchyn**  
Institute for Information Recording, National Academy of Sciences of Ukraine  
Application of thin films of chalcogenide vitreous semiconductors in optical recording systems
41. **Peter Domaschuk**  
University of Sydney (Australia)  
Silk Photonics: Biopolymer Optofluidics and Applications
42. **Alla Reznik**  
Thunderbay Regional Health Sciences Centre and Lakehead University (Canada)



Recent advances in x-ray photoconductors: selected examples on PbO and a-Se

43. **Yoonchan Jeong**  
Optoelectronics Centre, University of Southampton (UK)  
Recent advances in high power optical fibers
44. **Mihail Trunov**  
Uzhgorod National University (Ukraine)  
Photoplastic effect, giant photodeformation and mass-transport phenomena in amorphous chalcogenides
45. **Taiichi Otsuji**  
Tohoku University (Japan)  
Observation of amplified stimulated terahertz emission from optically pumped graphene
46. **Wieslaw Krolikowski**  
Australian National University (Australia)  
Second and Third Harmonic Generation in Nonlinear Crystals with Random Distribution of Ferroelectric Domains
47. **Peter Brodie**  
Advantechus, Pittsburgh (USA)  
Historical and Conceptual Roots of Active Matrix Technology: Science to Technology and AMOLEDs
48. **Volkan Demir**  
Bilkent University, Ankara (Turkey)  
Förster resonance energy transfer (FRET) enhanced white LEDs using semiconductor quantum dot nanophosphors
49. **Mahi Singh**  
University of Western Ontario (Canada)  
The study of optoelectronic nanoscale devices made from polaritonic nanowires
50. **Geza Mark**  
MFA Research Institute for Technical Physics and Materials Science, Budapest (Hungary)  
Ordered and disordered biological and biomimetic photonic nanoarchitectures
51. **Nobuyoshi Koshida**  
Graduate School of Engineering, Tokyo University of A&T, Koganei, Tokyo (Japan)  
Photonic and Related Applications of Quantum-sized Nanosilicon
52. **Osamu Wada**  
Kobe University (Japan)  
Quantum Dot Photonic Devices for Ultrafast Signal Transmission and Processing Systems
53. **Q. Y. Zhang**  
South China University of Technology (China)  
Broadband sensitization of near infrared emission through energy transfer from transition metal to rare-earth ions in LiYbMo<sub>2</sub>O<sub>8</sub> phosphors

# Fourth International Conference on Optical, Optoelectronic and Photonic Materials and Applications

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## Proceedings

Presented papers will be refereed and accepted ones will be published in a special issue of the journal **Physica Status Solidi A and C** (Wiley-VCH, Germany) within 8 months. The Proceedings will be edited by Guest Editors.

## Manuscripts

All authors are requested to upload his/her manuscripts online. Deadline for uploading your manuscript: **October 3, 2010**.

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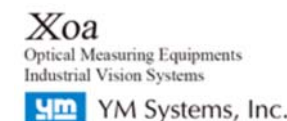
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