Community

Conference Notes

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Review: SPIE Optical Systems Design

Jena, Germany, September 7 –10, 2015

There are only a few events that really focus on optical design with all its facets, and the SPIE Optical Systems design conference is certainly one of the most prominent among them. It takes place about every 3 years, and it assembles the vital and progressive community of optical designers from all over the world. This time, more than 500 optics people attended the conference, which was remarkably more than 4 years ago in Marseille (about 380). It is described by the organizer as 'the premier European event for optical instrumentation…,' which is slightly surprising as the audience is rather global with strong contributions from Asia and the US as well.

The conference united a number of different symposia:

- Optical Design and Engineering VI
- Advances in Optical Thin Films V
- Optical Fabrication, Testing, and Metrology V
- Illumination Optics IV
- Computational Optics

Some picks from various sub-conferences

It is almost impossible to give a fair report on all symposia, as there were many exciting presentations in parallel sessions. Still, there were a few things that were remarkable: First, the conference on 'Advances in Optical Thin Films' was heavily crowded with many people standing in the back. Norbert Kaiser from the local Fraunhofer IOF started the event with an exciting journey through 'Recent developments in the field of optical coatings.' He named quite a few trends; just to mention one: Graphene and other two dimensional materials are very promising and intensively investigated. They are coming!

In the conference on Computational Optics, conference co-chair Frank Wyrowski and his team presented several applications of his new unified simulation approach.

One major topic in Illumination Optics was automotive lighting. There, halogen lamps are still leading in sales numbers, and a new generation of halogen lamps is coming. It is expected that in 2025, LED will catch up. Still, LED makes a lot of progress, and replaceable standard LED lamps are on the way. This will enable generic optical designs. Of course, the new laser-based headlights (Stephan Hadrath, OSRAM) drew a lot of attention. There, four blue laser diodes are directed onto a yellow phosphor, and together, they can make a narrow white beam, and yes, they have a safety system; failure of the phosphor would create an error, and lights would turn off.

Optical Fabrication may sound less interesting for an outsider, but in fact, it is thrilling to see how the precision requirements of scientific and space-based instruments drive the engineers to reach the technological limits. Process control in optical fabrication was the topic of Oliver Fähnle from FISBA OPTIK. Remarkable: Besides a number of substantial technological tricks, he mentioned culture, psychology, and diplomacy as key in optical manufacturing.

Must-have: Thüringer Rostbratwurst

There was an extensive reception program arranged together with local companies and institutions. So, there were plenty of opportunities for networking of all kinds. For local people, the charcoal-grilled Thuringian sausage is an important matter, and so, it was not only presented on the street closely to the conference area but also at Fraunhofer IOF reception. It was marvelous and a must-have for the locals as well as for their guests; many of them were educated or raised in the optics town of Jena.

On Wednesday, the International Year of Light was celebrated at an official dinner at the historical planetarium, sponsored by Schott AG. The Zeiss-Planetarium in Jena is the oldest continuously operating planetarium in the world.

The next SPIE Optical Systems Design is planned for September 2018; a location in the United Kingdom is under discussion.

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Preview: Photonics West 2016

San Francisco, USA, Conference: February 13–18, Exhibition: February 16–18, BiOS Expo February 13–14, 2016

It is the biggest conference and the biggest American trade show in photonics. Last year, 20 000 people came to see 4700 presentations at 95 conferences. Sixty-seven courses were offered, 19 plenary sessions, and 40 special events. The main exhibition featured 1250 companies, and there is no sign that it will become smaller this year.

What to see and where to go

It is difficult, if not impossible, to give good advice for must-see events in such a huge variety of events. Nevertheless, there are some events that standout by tradition or which are established newly in the program and deserve a closer look.

Those interested in Biophotonics start a bit earlier than the others: Their separate exhibition, BiOS EXPO, starts on Saturday February 13 already. A major meet-and-greet event is the BIOS Hot Topics session on Saturday, 7 PM. You may also consider the evening session of the International Biomedical Optics Society (Tuesday, 7:30–9:00 PM) with a plenary on Light Sheet Imaging given by Kishan Dholakia.

New tracks in the conference are 'Biophysics, Biology and Biophotonics: the Crossroads' (Wax, Backman), 'High-Speed Biomedical Imaging and Spectroscopy: Toward Big Data Instrumentation and Management' (Tsia, Goda, Jalali, Lam, Wong).

The LASE Symposium deals with Laser Source Engineering, Nonlinear Optics, Semiconductor Lasers/LEDs, Laser Micro-/Nanoengineering, and Laser Applications. Additional 'virtual' events are dedicated to Green Photonics and 3D Fabrication/3D Printing. Green Photonics includes green photonics for solid state lighting and displays, laser-assisted manufacturing and micro/nanofabrication, communications, renewable energy generation: fusion and photovoltaics.

The LASE Plenary Presentations on Wednesday feature Philip Russell (2015 OSA president and head of the Max-Planck Institute for the Science of Light in Nuremberg, Germany), Satoshi Kawata (Osaka University, Japan, and RIKEN), and Scott Keeney (nLight Corp.)

A new session is introduced in the Nonlinear Optics track: 'Real-Time Measurements, Rogue Events, and Emerging Applications' (Jalali, Turitsyn, Solli, Dudley).

OPTO 2016 is the part of SPIE Photonics West on silicon photonics, photonic crystals, optoelectronics, semiconductor lasers, quantum dots, and nanophotonics. This conference addresses the latest developments in a broad range of optoelectronic technologies and their integration for a variety of commercial applications. As you may see on those topics, the former MOEMS-MEMS track has been included to large parts in this track.

OPTO plenaries are presented on Monday, and here is a list of speakers: Xiang Zhang (University of California, Berkeley, USA), Robert W. Boyd (University of Ottawa, Canada, and University of Rochester, USA), and Michael Liehr from the newly established American Institute for Manufacturing of Integrated Photonics, and Colleges of Nanoscale Science and Engineering (SUNY Polytechnic Institute, USA).

Short courses

If you want to get valuable knowledge from very experienced tutors, then, the short courses might be the right choice for you. This year, there are 67 courses and workshops. You may choose from one of the following tracks:

– Photonic Therapeutics and Diagnostics	– Nano/Biophotonics	– Displays and Holography
– Neurophotonics, Neurosurgery, and Optogenetics	– Laser Source Engineering	– Optical Materials and Fabrication
– Clinical Technologies and Systems	– Nonlinear Optics	– Optical Systems and Lens Design
– Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering	– Semiconductor Lasers and LEDs	– Optomechanics
– Biomedical Spectroscopy, Microscopy, and Imaging	– Laser Micro-/Nanoengineering	– Metrology and Standards
	– Laser Applications	– Imaging
	– Optoelectronic Materials and Devices	– Professional Development Workshops
	– Photonic Integration	
	– MOEMS-MEMS in Photonics	

Special industry events

Besides the industry-related presentations and courses, there are some special events that are certainly worth seeing:

– Cluster Reception – Leaders from regional optics and photonics clusters are welcome. Includes 'Photonics Industry Update' from Steve Anderson (Monday, February 15, 2016, 5:00 PM–6:30 PM).

- Startup Challenge – Watch entrepreneurs pitch their new photonics business and compete for over $20 000 in cash and products (Wednesday, February 17, 2016, 3:30 PM–6:00 PM)
- PRISM Awards Ceremony and Banquet. The Prism Awards recognize the most innovative products on the market. Twenty-seven companies (finalists) from nine categories will share the room with industry leaders and visionaries. The event has become one of the largest gatherings of CEOs and VIPs in the photonics industry. The evening begins with a reception, followed by an elegant dinner and award ceremony. Dress is business and formal attire. Seating is limited. Tickets are required in advance (Wednesday, February 17, 2016, 6:00 PM–10:00 PM)
- Startup Alley – Commercialization and Prototype Showcase. Meet with the entrepreneurs featured in the Startup Challenge as they pitch their new photonics businesses. See the prototypes and talk with the entrepreneurs to explore potential partnerships, investment, or sales (Thursday, February 18, 2016, 11:30 AM–1:30 PM).

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