

Convention Program
Optical Technologies for Measurement
and Analysis



International Trade Fair and Convention
for Optical & Laser Technologies

17–19 March 2008
New: Berlin Exhibition Grounds

www.laser-optics-berlin.de



Preface

Dr. Annette Schavan, MdB
Federal Minister
of Education and Research



The use of light in technology has long become an integral part of modern life – be it in the early detection and combat of life-threatening diseases, the optimization of quality assurance in production processes, or the low-energy lighting of whole surfaces by means of flexible organic light-emitting diodes (OLEDs).

Optical technologies are pace-setters for modern economies and societies. They generate important innovations in areas such as mechanical and automotive engineering, aircraft construction, shipbuilding, microelectronics, lighting, and the pharmaceuticals and medical devices industries, all areas in which Germany has core competencies.

Optical technologies are a dynamic sector with enormous growth potential. A study recently published by the Federal Ministry of Education and Research shows that in 2005 alone, the sales volume generated by optical technologies in Germany amounted to 16.3 billion. Companies operating in the optical technologies sector in Germany predict a growth rate of 8.5% per year in the next ten years. At present, approximately 105,000 people are employed in this sector, a figure that is expected to rise to 143,000 by 2015.

We want to take full advantage of the potential of optical technologies. That is why this field is a priority in our High-Tech Strategy for Germany. Our aim is to reduce the time it takes for ideas to be turned into new, marketable products, processes and services. We want Germany to become the most innovative and research-intensive country in the world by 2020. In order to achieve this goal, we are encouraging close strategic cooperation between policy-makers, the scientific community and the private sector. Many of the lighting innovations that are being shown at the Laser Optics Berlin trade fair are the result of these collaborations.

I am confident that Laser Optics Berlin 2008 will be successful and hope that all visitors will have productive conversations, make useful business contacts, and go home richer in interesting experiences.

Annette Schavan

Dr. Annette Schavan, MdB
Federal Minister of Education and Research

Plenary speakers



Ursula Keller
Ultrafast lasers: hitting harder, faster and broader
Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland



Philip Russell
Photonic crystal fibres: Light in a tight space
Max-Planck-Forschungsgruppe and Universität Erlangen

Invited speakers include



Frans J.M. Harren
Laser based infrared spectroscopy for sensitive chemical sensing
Life Science Trace Gas Facility, Radboud University Nijmegen, Netherlands



Harald Telle
Femtosecond lasers as metrological tools
Physikalisch-Technische Bundesanstalt, Braunschweig



Alfred Vogel
Nanoeffects in cells and tissues produced by femtosecond and nanosecond laser pulses
Medical Laser Center, University of Lübeck



Joachim Wagner
Large tuning range quantum cascade laser modules for the detection of hazardous substances
Fraunhofer Institute for Applied Solid State Research, Freiburg

Monday, March 17, 2008

Opening session

- 9:00 Welcome and Opening of Laser Optics Berlin
- 9:30 **Plenary talk**
Ultrafast lasers: hitting harder, faster and broader
Ursula Keller
Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland
- 10:30 Break

Session: Ultrashort pulses

- 10:50 **290-fs pulses from an optically pumped semiconductor disk laser (invited talk)**
P. Klopp, F. Saas, U. Griebner, M. Zorn, M. Weyers
Max-Born-Institute and Ferdinand-Braun-Institute, Berlin
- 11:20 **Passive mode-locking of novel Yb-doped tungstate crystals**
S. Rivier, A. Schmidt, V. Petrov, U. Griebner, D. Rytz, A. Garcia-Cortés, J.M. Cano-Torres, M.D. Serrano, C. Cascales, C. Zaldo
Max-Born-Institute, Berlin; FEE GmbH, Idar-Oberstein; Instituto de Ciencia de Materiales, Madrid, Spain
- 11:40 **Few-cycle pulse interactions in quadratic photonic crystals with the dispersion management**
V.E. Lobanov, V.A. Chernykh, A.P. Sukhorukov
Faculty of Physics, Lomonosov Moscow State University, Moscow, Russia
- 12:00 **High fidelity ultrashort-pulse transfer with spatial light modulators**
M. Bock, S. Kumar Das, R. Grunwald, S. Osten, P. Staudt, G. Stibenz
Max-Born-Institute, Berlin; HoloEye Photonics AG, Berlin; APE GmbH, Berlin
- 12:20 **Plasma x-ray source for femtosecond pulses**
M. Haschke, M. Bargheer, W. Mathis, A. Günther, W. Mackowiak, F. Tretner, F. Oesker
Institute for Scientific Instruments GmbH, Berlin; Max-Born-Institute, Berlin; Feinmechanik Teltow GmbH, Teltow
- 12:40 Break

Session: Applications of ultrashort pulses

- 14:30 **Femtosecond lasers as metrological tools (invited talk)**
Harald Telle
Physikalisch-Technische Bundesanstalt, Braunschweig
- 15:00 **Terahertz spectrometer applying 1.5 µm fibre optoelectronics (invited talk)**
B. Sartorius, J. Boettcher, H. Künzel, H. Roehle
Fraunhofer Heinrich-Hertz-Institut, Berlin, Germany
- 15:30 **Photoelectron spectroscopy on a femtosecond time scale – ultrafast dissociation of the Br₂ molecule (invited talk)**
P. Wernet, K. Godehusen, J. Gaudin, O. Schwarzkopf, W. Eberhardt, M. Odelius
BESSY GmbH, Berlin; Stockholm University, Stockholm, Sweden
- 16:00 **Laser-induced ultrafast dynamics at surfaces of rare-earth metals investigated by nonlinear magneto-optics (invited talk)**
A. Melnikov, U. Bovensiepen
Fachbereich Physik, Freie Universität Berlin

Tuesday, March 18, 2008

Session: Photonic crystals

- 9:00 **Plenary talk**
Photonic crystal fibres: Light in a tight space
Philip Russell
Max-Planck-Forschungsgruppe and Universität Erlangen
- 10:00 **Scientific computing for the design of nano-optical devices**
S. Burger, L. Zschiedrich, J. Pomplun, F. Schmidt
Zuse Institute, Berlin; JCMwave GmbH, Putzbrunn
- 10:20 **Microstructuring soft glasses for applications in fiber lasers and x-ray optics**
A. Bjeoumikhov, P. Glas, N. Langhoff, G. Steinmeyer, R. Wedell
Institute for Scientific Instruments GmbH, Berlin; Institut für Angewandte Photonik eV, Berlin; Max-Born-Institute, Berlin
- 10:40 **Selectively filled photonic crystal fibers for ultra-sensitive fluorescence detection**
S. Smolka, M. Barth, O. Benson
Research Center COM, Technical University Denmark, Lyngby, Institut für Physik, Humboldt Universität zu Berlin
- 11:00 Break

Session: Optoelectronics

- 11:20 **Zn(Cd)O/ZnO - a new hetero system for visible-wavelength semiconductor lasing**
S. Sadofev, S. Kalusniak, J. Puls, F. Henneberger
Institut für Physik, Humboldt Universität zu Berlin
- 11:40 **Carrier dynamics in active-region materials for semiconductor laser applications**
J.W. Tomm, V. Talalaev
Max-Born-Institute, Berlin
- 12:00 **808-nm TM polarized high power broad area lasers with 70 % power conversion efficiency**
P. Crump, H. Wenzel, S. Einfeldt, P. Ressel, M. Zorn, F. Bugge, G. Erbert, G. Tränkle
Ferdinand-Braun-Institute, Berlin
- 12:20 **Highly efficient blue light generation with high brightness semiconductor lasers**
A. Jechow, A. Heuer, D. Skoczowsky, R. Menzel
Universität Potsdam
- 12:40 **400 mW optical output power at 488 nm using a monolithic DBR tape red diode laser**
M. Uebernickel, G. Blume, C. Fiebig, R. Güther, K. Paschke, G. Erbert
Ferdinand-Braun-Institute, Berlin
- 13:00 Break

