

THUIIIa • Poster III a - Applications

*Poster Area***16:15–18:15****THUIIIa • Poster III a - Applications****THUIIIa.1 • 16:15****Ultrafast Laser Calligraphy**, •Peter Kazansky¹, Weijia Yang¹, Yuri Svirko², Yasuhiko Shimotsuma³, and Kazuyuki Hirao³;¹Optoelectronics Research Centre, University of Southampton, SO17 1BJ, United Kingdom, ²Department of Physics and Mathematics, University of Joensuu, FI-80101, Finland, ³Department of Material Chemistry, Graduate School of Engineering, Kyoto University, Kyoto, Sakyo-ku 606-8501, Japan.

Control of structural modifications inside transparent materials by varying the direction of pulse front tilt is demonstrated, achieving a calligraphic style of writing. Anisotropic ultrafast laser cavitation in the irradiated region is observed.

THUIIIa.2 • 16:15**Spatio-temporal optimization of transient electron plasma formation in bulk dielectrics for waveguide writing with fs laser pulses**, •Jan Siegel, Wojciech Gawelda, Daniel Puerto, Andres Ferrer, Alejandro Ruiz de la Cruz, and Javier Solis; Laser Processing Group, Instituto de Óptica, C.S.I.C., 28006 Madrid, Spain.

This poster has been withdrawn by the authors.

THUIIIa.3 • 16:15**Advantages of two-photon microscopy with ultrashort pulses**, •Yair Andegeko, Peng Xi, Kyle Sprague, and Marcos Dantus; Department of Chemistry, Michigan State University, East Lansing MI 48824.

We demonstrate qualitatively and quantitatively higher

fluorescence intensity, deeper penetration, and improved signal-to-noise ratio for biomedical imaging with dispersion free ultrashort sub-10 fs pulses.

THUIIIa.4 • 16:15**Ultraprecisely machined microoptics for fs-pulse shaping and replication**, •Hans Knuppertz¹, Michael Bohling¹, Jürgen Jahns¹, Martin Bock², and Rüdiger Grunwald²; ¹Lehrgebiet Optische Nachrichtentechnik, FernUniversität Hagen, Universitätsstr. 27/PRG, D-58084 Hagen, Germany, ²Max-Born-Institute for Nonlinear Optics and Short-Pulse Spectroscopy, Max-Born-Str. 2a, D-12489 Berlin, Germany.

Two reflective systems for the filtering and replication of optical fs-pulses are presented: an integrated microoptical pulse shaper and an interferometer using a retroreflector array. We describe design, fabrication and demonstration experiments and compare results.

THUIIIa.5 • 16:15**Development of laser-based imaging systems for medical diagnostics**, •Stefan Witte¹, Erwin Peterman¹, Ruud Brakenhoff², Guus van Dongen², Ruud Toonen³, Huib Mansvelder³, and Marie Louise Groot¹; ¹Laser Centre Vrije Universiteit, De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands, ²Otolaryngology/Head-Neck Surgery, Vrije Universiteit Medical Centre, De Boelelaan 1117, 1081 HV Amsterdam, The Netherlands, ³Center for Neurogenomics and Cognitive Research, Vrije Universiteit, De Boelelaan 1085, 1081 HV Amsterdam, The Netherlands.

We present a laser system with high wavelength flexibility, suitable for nonlinear microscopy and optical coherence tomography, for visualization of disease-related morphological changes in vivo. First results on in-vitro samples are discussed.