Efficient Femtosecond Yb:Lu2O3 Thin Disk Laser, Sergio V. Marchese, Cyril R. E. Baer, Anna G. Eggersdorfer, Matthias Golling, Deren J. H. C. Maas, Thomas Südmeijer, Ursula Keller, Rigo Peters, Christian Kränkel, Klaus Petermann, Günther Huber; Dept. of Physics, Inst. of Quantum Electronics, ETH Zurich, Switzerland; Institut für Laser-Physik, Univ. of Hamburg, Germany. We demonstrate the first mode-locked Yb:Lu2O3 thin disk laser, obtaining 370-fs pulses with 20.5 W average power. The 43% optical-to-optical efficiency obtained with 523-fs pulses is higher than for previous mode-locked thin disk lasers.

ME6 • 3:15 p.m.
290-fs Passively Mode-Locked Semiconductor Disk Laser, Peter Kloppe, Florian Saas, Jens W. Tomm, Uwe Griebner, Martin Zorn, Götz Erbert, Markus Weyers; Max-Born-Institut, Germany. A passively mode-locked semiconductor disk laser employing a graded-gap barrier design in the gain section is presented. The all-semiconductor laser generates transform-limited pulses as short as 290 fs at 1036 nm.

ME7 • 3:30 p.m.
Modelocked Integrated External-Cavity Surface Emitting Laser (MIXSEL), Aude-Reinette Bellancourt, Deren J. H.C. Maas, Benjamin Rudin, Matthias Golling, Thomas Südmeijer, Ursula Keller; ETH, Switzerland. We discuss a passively modelocked VECSEL with both gain and saturable absorber integrated into a single semiconductor structure. The MIXSEL generates 195 mW average power in 32-ps pulses in a diffraction limited beam (M2<1.1).

Noh Theater
3:45 p.m.–4:15 p.m.
Coffee Break/Exhibits Open

MF • Yb-Doped Materials
Noh Theater
4:15 p.m.–5:30 p.m.
MF • Yb-Doped Materials
Jens Limpert; Friedrich Schiller Univ., Germany, Presider

MF1 • 4:15 p.m.
Photoconductivity Measurements Indicating a Nonlinear Loss Mechanism in Highly Yb-Doped Oxides, Christian Hart, Susanne T. Frederich-Thornon, Friedjof Tellkamp, Klaus Petermann, Günter Huber; Institut für Laser-Physik, Univ. of Hamburg, Germany. Photoconductivity has been measured in highly Yb-doped oxides, revealing the occurrence of an up-conversion mechanism in these materials. A model for the observed phenomenon is suggested and the impact on thin-disk lasers is discussed.

MF2 • 4:30 p.m.
Influence of the Yb-Doping Concentration on the Efficiency of Lu2O3 Thin Disk Lasers, Rigo Peters, Christian Kränkel, Klaus Petermann, Günter Huber; Inst. of Laser-Physics, Univ. of Hamburg, Germany. A comparative study of high-power Yb:Lu2O3 thin disk lasers with different doping-concentrations is reported. 36.3W output-power at 1035nm with a slope-efficiency of 80% were obtained from a 5at.-%-doped disk under diode-pumping with 49.8W at 976nm.