

Oddělení diodově čerpaných laserů a realizační tým projektu HiLASE  
Vás zve na seminář

## ***Nonlinear thermal effects and Amplified Spontaneous Emission (ASE) in high-average-power solid-state lasers***

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*Compact and efficient diode-pumped solid-state lasers with high-average power and good beam quality are of considerable interest for many applications in research and industry. This talk will report on an original high-energy class diode pumped solid-state laser called LUCIA. The laser system is currently installed at Laboratory LULI (Ecole Polytechnique, Palaiseau) in France. It is based on the active mirror concept and it is capable of delivering 7 ns laser pulses with pulse energy of 7 J at 0.3 Hz (or 6.6 J at 2 Hz). Power scaling in high-energy class lasers is limited by Amplified Spontaneous Emission (ASE) and by thermal and mechanical stress effects. I will report on the strategies adopted to minimize ASE losses in the LUCIA power amplifier. I will also discuss experimental and numerical studies of the thermally induced optical distortions in  $\text{Yb}^{3+}$ :YAG laser disks. Finally, I will describe our results on cryo-cooled  $\text{Yb}^{3+}$ :YAG active mirror amplifiers for the HiPER prototype, including pumping, extraction, and cooling configurations.*

***který se bude konat dne 27.10.2010 od 14:30 v zasedacím sále  
Fyzikálního ústavu AV ČR, v.v.i.***