Centrum HiLASE
Fyzikální ústav AV ČR, v.v.i.
Za Radnicí 828
CZ-25241 Dolní Břežany
www.hilase.cz

SUPERLASERS FOR THE REAL WORLD

Laserové centrum HiLASE Vás zve na seminář v anglickém jazyce:

Extreme picosecond laser pulses for non-thermal opto-mechanical ignition of hydrogen-boron fusion

Heinrich Hora

University of New South Wales, Sydney, Australia

In order to avoid the >100MeV temperatures for thermonuclear ignition of hydrogen H fusion with 11B (HB11 fusion), the now available picosecond laser pulses of more than 10 petawatt power permit the ignition at extreme non-LTE (local thermal equilibrium) conditions. In contrast to the classical heating, the nonlinear (ponderomotive) forces of the laser field provide the necessary pressures for ignition at comparable modest temperatures with energy gains higher than fife orders of magnitudes, and additional four orders are due to the avalanche HB11 reaction. This result explains exactly the measurements of fusion energy gains at the PALS laser. Combining this with kilotesla magnetic fields for cylindrical trapping opens the design of environmentally absolute clean, low cost and lasting generation of electricity [1]. This modestg temperature fusion is in fundamental contrast to the needed >10 keV temperatures for continuous fusion at low density magnetic field confinement.

[1] H. Hora, S. Eliezer et al. Laser and Particle Beams 35 (2017) 730; IEEE Transact. Plasma Sc. 46 (2018) 1191.

Kdy: **v pondělí 18. 06. 2018 od 10:00**

Kde: **seminární místnost HiLASE**

TEAMING FOR SUCCESS

Science & Technology Facilities Council

EVROPSKÁ UNIE
Evropské strukturální a investiční fondy
Operační program Výzkum, vývoj a vzdělávání

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 739573 (HiLASE CoE)

FZÚ