



HiLASE (High-average power pulsed lasers) is a European R&D project aimed at development of novel type of diode-pumped solid-state lasers (DPSSL) intended for industrial and scientific applications. The project realization team from the Institute of Physics AS CR, v.v.i. is seeking a candidate for the position of:

Postdoctoral Fellow

"Ultrashort laser pulse processing of glass materials"

The postdoctoral research will target the experimental studies of interaction of ultrashort laser pulses with wide-bandgap dielectrics in order to establish principles for ultraprecise processing of technologically important glasses. The main concept of the proposed project is to find a niche for ultrashort laser pulses in high-quality, crack-free, high-speed laser processing of glass materials, such as fused silica, borosilicate and phosphate glasses, including ultrathin glass plates, that is of high demand in multiple applications such as glass cutting for mobile devices, PCB drilling, and electronic packaging.

The successful candidate will carry out experiments of femtosecond laser interaction with glass materials. The experimental studies will include determination of thresholds for glass damage and white light generation, single- and multi-pulse ablation of glass surfaces in a wide range of laser fluences, microscopy of resulting craters. Experiments will be done with lasers at 800 and 1030 nm wavelength in air at normal conditions and in vacuum. Special experiments are planned to be designed for revealing the role of air in the damage threshold and ablation quality. The experiments will be supported by numerical modeling available at HiLASE. Based on the obtained results, he/she will find the conditions to suppress the mechanisms responsible for glass cracking.

The candidate must demonstrate experience on materials processing with lasers, preferably on micromachining using ultrashort pulsed lasers; strong background in non-linear optics, designing of laser-matter interaction experiments, data acquisition and analysis; independent work; sufficient knowledge and experience with different materials testing and analysis techniques (e.g. optical and electron microscopy and AFM).

Key Responsibilities:

1. Realization of research tasks assigned by the Mentor.
2. Advising, training, and educating students (3 hours per week).
3. Research stay in selected world-class institution outside Czech Republic (3 months).
4. Publishing in SCI journals.

Key Requirements:

1. Ph.D. in natural sciences or applied sciences or engineering gained within the last 6 years.
2. English language on a very good level (written and spoken).
3. Strong motivation for work and loyalty.
4. Excellent communication and organizational skills.
5. Team player, feel a sense of accomplishment.
6. Willing to travel.

We Offer:

1. Monthly salary of up to 2.200 EUR depending on the quality of candidate.
2. Contract until 30th June 2015.
3. 5 weeks of holidays per year.

Requested Documents:

1. CV (English).
2. List of publications (English).
3. Recommendation Letter (English or Czech).
4. Motivation Letter (English).
5. Copy of Ph.D. diploma or certificate (English or Czech)
6. Copy of Ph.D. thesis (hard copy or electronic version)

Deadline: November 15, 2014

Contact:

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