

HiLASE Centre is pleased to invite you to attend the seminar:

Damage effects in opaque solids induced by short and ultrashort laser pulses: Comparison of air and water environments

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Pulsed laser ablation in liquids (PLAL) is an efficient and flexible technique for nanoparticle production and surface nanostructuring. Although PLAL is simple in realization, the process itself is very complicated and still poorly understood. The complexity of the PLAL process can be illustrated by the example of the laser-induced damage threshold (DT), a well-defined parameter which can be unequivocally measured and serve as a reference for understanding and modelling of the PLAL process. However, available data on DTs in liquids are rather contradictory, provide threshold fluences higher, equal to, and lower than the corresponding values in air, and various mechanisms are invoked to explain the difference. The presentation overviews recent studies performed by RP4 group at HiLASE in collaboration with IT SB RAS (Novosibirsk, Russia) on DTs of a number of metals and semiconductors irradiated by IR laser pulses in water. The experiments were carried out with nano-, pico- and femtosecond pulses in single-shot and multi-short irradiation regimes. The results are compared with data obtained under identical irradiation conditions in air. The influences of the pulse duration, surface reflectivity, focusing conditions, water superheating and nucleation, accumulation effects and non-linear effects during laser pulse propagation in water are discussed.

When: Monday, **27/05/2019 at 14:00**

Where: Seminar room, HiLASE Centre