

## HiLASE CENTRE

The HiLASE Centre represents an excellent technological infrastructure in the field of laser research and development at a global level.

The main mission of the HiLASE Centre is to create "Superlasers for the real world". The HiLASE Center team is dedicated to the development of a new generation of diode-pumped solid-state lasers with high pulse energy or high repetition rate. This technology makes the lasers significantly more powerful, efficient, compact and stable than currently available lasers. One of the most important equipments of the HiLASE Centre is the unique "BIVOJ" laser system, which is the most powerful laser in its category in the world thanks to its average power exceeding 140 J.

The HiLASE Centre combines experimental laser development with advanced industrial applications under one roof. The Centre works closely with a number of companies to create innovative laser solutions for their specific needs. It offers its expertise in the following areas:

- Producing functional surfaces
- Increasing the durability of metal components by laser shock peening (LSP)
- Laser micromachining
- Laser Induced Damage Threshold (LIDT) in the ISO certified laboratory

The HiLASE Centre is also a partner of many universities and research institutions in the Czech Republic and worldwide. It strives to engage young people in science, organising competitions such as the Talent Academy and Science Challenge for gifted high school students. It is located in the dynamically developing Science and Technology Advanced Region (STAR), which aims to promote the collaboration of cutting-edge science with innovative industry, and thus improve the competitiveness of the Czech Republic.

The centre holds two records in multi-beam laser nanostructuring. The research team used 40,401 beams at once, which completely changes the possibilities for laser surface processing. This achievement was accomplished thanks to the PERLA® laser system, that is widely applicable in industry. Like the GOPico® fibre oscillator, it can be modified according to customer requirements.

The HiLASE Centre is part of the Institute of Physics of the Czech Academy of Sciences and is the holder of the HiLASE Centre of Excellence project, the first ever call of the European Commission's Horizon 2020 programme "WIDESPREAD Teaming".

## Contact

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