

HiLASE Laser Centre celebrates its 10th birthday

Dolní Brezany, 10/7/2021

Ten years, four world records, one visionary. HiLASE Laser Centre celebrates its first decade. It successfully links the fields of development, research, and high-tech industry to fulfil its mission of Superlasers for the Real World. Behind the ground-breaking results of research activities and projects stand the scientists, experts and professionals of the centre, the so-called HiLASIANS. Since its foundation, HiLASE Centre, which is part of the Institute of Physics of the CAS, has been managed by Tomáš Mocek. Under his leadership, the idea has been transformed from a project application into a truly functioning laser centre, which today is one of the global leaders in the field of laser technology.

The idea of establishing a national platform for the development of new laser technologies dates back to the beginning of the new millennium. Behind the founding of HiLASE Centre is none other than Tomáš Mocek, who, with the help of Euro Managers, especially their project manager, Lukáš Masopust, managed to turn an ambitious plan for a laser centre into a real project application. The application was approved in September 2011 and that is when HiLASE Centre was founded. In the same year, Lukáš Masopust joined HiLASE Centre and nowadays he is the Deputy Head of the Centre and the Head of the Project Management Department too. *"For me, HiLASE: New Lasers for Industry and Research project was not only interesting, but also a great challenge. I am glad that I accepted this challenge and have been part of everything that has been going on since the beginning of HiLASE Centre,"* comments Masopust. In 2012, the cornerstone was laid and the first construction work began. In the summer of 2014, the HiLASE Centre building was completed and in September 2014 it was inaugurated with the participation of many distinguished guests, such as the then President of the CAS Prof. Ing. Jiří Drahoš, DrSc. or Cardinal Dominik Duka.

In the meantime, the British Science and Technology Facilities Council (STFC), with the extensive help of HiLASE team, has been working hard to build a unique super-powerful laser system, which was subsequently named after the famous strongman from Czech myths and legends, BIVOJ. Just before Christmas 2015, the system was delivered to the Czech Republic, and a year later, in December 2016, the HiLASE Centre team achieved its first world record. The BIVOJ laser system broke the magical energy threshold of 100 J at 10 Hz.

"Of course, I am proud of the records we have achieved during the ten years of HiLASE's existence. However, I am most happy that we have managed to maintain and expand a stable international team. The main achievement is that we have managed to develop and assemble lasers that are unique in the world, that we use them successfully for applications and that they work reliably. This is exactly what our users and industrial partners appreciate the most," says Tomas Mocek, head of the centre, looking back on the past years.

During its ten years of existence, HiLASE Centre has managed to build not only a team of more than 100 people, but also a top-class infrastructure. In addition to the unique BIVOJ laser system, you will find there, for example, a state-of-the-art Laser Shock Peening (LSP) station, which significantly improves the lifetime of

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metallic materials, or a Laser Induced Damage Threshold (LIDT) test station, which helps to determine the lifetime of key optical components. The research centre also has the PERLA laser system, which was developed exclusively in-house by HiLASE and enables super-precise laser drilling and cutting. The portfolio of products and services offered by HiLASE Centre also includes tailor-made laser products. These include the PERLA 100 compact laser system or the GO PICO fibre oscillator. Thanks to HiLASE Centre, the most powerful laser technologies are now in everyday industrial use.

For its tenth birthday, HiLASE Centre has already given itself a new spin-off, Hi-Beams, and three more world records. On January 26, 2021, the BIVOJ laser system broke its own record set in 2016, when it consistently achieved an energy of 145 J at 10 Hz, almost 40% higher than last time. In the summer of 2021, other world records were achieved, this time in multi-beam laser nanostructuring and also in the rate of production of laser-induced periodic nanostructures on stainless steel.

What would the "founding father" Tomáš Mocek wish for HiLASE Centre?

"Good luck for the next decades! Many meaningful projects, new discoveries and exciting moments in overcoming the limits of current laser technologies, new scientific and commercial collaborations, sufficient financial resources and potential investors, as well as the continuous development of our product and service portfolio! I wish HiLASians the joy of good work and the realization of their individual dreams! Sometimes a simple dream can be the inspiration for an interesting idea, which with hard work and luck will eventually become a reality and a great technological innovation! So, don't be afraid of big challenges and go determinedly after your dreams!"

HiLASE Center's historical milestones at www.hilase.cz/en/milestones

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About HiLASE Centre

HiLASE Centre (an acronym for High average power pulsed LASERs) is a scientific research centre of the Institute of Physics of the Czech Academy of Sciences. The main goal of the research centre is to develop new frontier laser technologies - diode (diode pumped solid state laser systems, DPSSLs) with high energy per pulse and high repetition frequency at the same time. HiLASE centre also tests the durability of optical materials (LIDT – Laser Induced Damage Threshold) and conducts research on strengthening material through laser shock peening, precision cutting, drilling, welding, micromachining and surface cleaning.

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About FZU

Institute of Physics of the Czech Academy of Sciences ([FZU](#)) is a public research institute, conducting fundamental and applied research in physics. The present research programme of the Institute comprises six branches of physics: particle physics, physics of condensed matter, solid-state physics, optics, plasma and laser physics. FZU is fully involved in fundamental research at the European and world level. With more than 500 scientists, FZU is the largest institute of the Czech Academy of Sciences ([CAS](#)). The institute hosts postdoctoral researchers through a number of mobility programmes such as the Marie Skłodowska Curie Actions.

Attachment:



2011 – HiLASE Centre team

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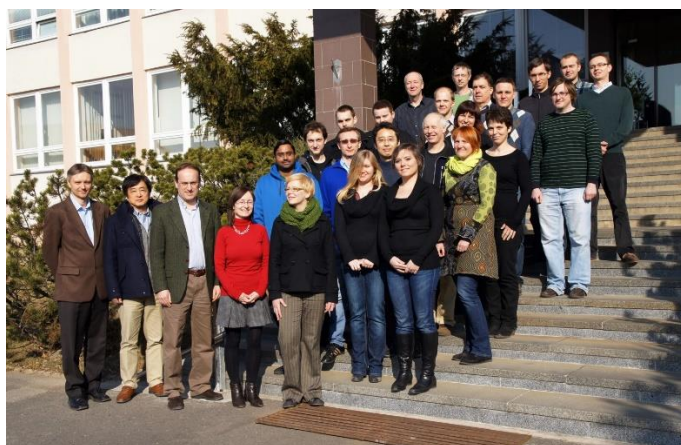
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2012 - Cornerstone laying ceremony



2012 – HiLASE Centre team

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2013 – Construction of the HiLASE Centre building



2021 – HiLASE Centre building

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2016 – Instalation of laser BIVoj system



2021 – BIVoj laser system



2021 – HiLASIANS – teambuilding

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Ing. Tomáš Mocek, Ph.D., Head of HiLASE Centre

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