

HiLASE Centre is pleased to invite you to attend the seminar

## Laser processing of C Laser processing of C-PPS and C PPS and C-PEEK Carbon Fibre Reinforced Plastics

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Carbon fibre reinforced plastic (CFRP) is strong, lightweight and durable material with good corrosion and vibration resistance. It is a good candidate to replace metals in production of many parts, while an optimally designed CFRP part can be up to 70% lighter than steel and 30% lighter than aluminium as well as to have twice the strength, more than twice the fatigue resistance of steel and be twice time stiffer than aluminium. The benefit of CFRP for lightweight construction in automotive and airplane industries is widely accepted.

Conventionally used techniques, such as shape-cutting, drilling, milling or water jet cutting are connected with limitation related to quality and productivity. Therefore, laser processing, as a non-contact, flexible and easy to automated, was recently recognized as possible solution for large-volume production of CFRP parts. Unfortunately, this technology is also connected with two major challenges: to machine the CFRP material with high speed and at the same time to minimize heat affected zone (HAZ).

Analyse of optimal laser and processing parameters for efficient cutting and surface microstructuring of CFRP followed by experiment and results summarized in optimal processing windows for high-quality cutting of CFRP with 3ns IR Omron laser and 20ns laser emitting in UV will be presented. Possible further process improvements and future work will be also presented.

**When: Wednesday, 15/11/2017 at 3:00 PM**

**Where: seminar room, HiLASE Centre**