



## LECTURE at INFLPR

Date: 09 November 2018  
Place: National Institute for Laser, Plasma and Radiation Physics - INFLPR  
Magurele 077125, Ilfov  
ROMANIA  
Location: INFLPR - CETAL | Conference Room

- 09 NOVEMBER 2018 -

10:00 - 11:00 **LOW-STRESS SOLDERING PROCESS to ASSEMBLE HIGHLY STABLE and MINIATURIZED LASER RESONATORS**  
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**Abstract** We evaluated a low-stress soldering technique as a process to design and assemble high stable and miniaturized laser resonators capable of performing in harsh environments. In order to develop miniaturized laser devices, small-induced stresses produced by soldering techniques as solderjet bumping were investigated to guarantee that the stress-induced birefringence effects would not alter the device laser emission. To do so, we implemented a method to simulate induced stresses for a laser crystal packaging techniques and performed the consequent study of birefringent effects inside the laser cavities. The method was performed by thermo-mechanical simulations by using ANSYS 17.0. ANSYS results were later imported into a VirtualLab Fusion software package in which input/output laser beams were analysed in terms of wavelengths and polarization.

**Pol Ribes PLEGUEZUELO** received his diploma degree in physics from the University of Barcelona, Spain in 2008. From 2010 to 2013 he worked as a researcher in design, manufacturing, and marketing of low/high power diodes and advanced solid-state lasers at Monocrom SL, Spain. Since 2013 he has been working at the Fraunhofer Institute of Applied Optics and Precision Engineering, Germany. His research interests include advanced solid-state lasers, opto-mechanical design/analyses and assembly technologies for space applications.

