

PhD Position offer

Development of high-average power and high-energy mid-IR femtosecond lasers

Keywords : mid-infrared, CPA architectures, fiber laser, solid state lasers, laser ceramics, non-linear optics

Location : Institut d'Optique d'Aquitaine, Talence, France

Starting date : 09/2019

Duration: Three years

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Co-advisor : Dr. Loic Deyra (loic.deyra@alphanov.com)

In the framework of the project GREAT, a Marie Curie ITN Early Stage Researcher (ESR) position is available from October 2019 onwards for 36 months to work in the field of innovative hybrid technologies for high-average power and high-energy mid-IR femtosecond lasers. The research position offer consists of a 3-year PhD doctoral programme, awarded by a PhD degree from University of Bordeaux.

ALPhANOV is the Optics and Lasers technological centre of the French Route des Lasers® competitiveness cluster. Supported by the Aquitaine Region, in close collaboration with Bordeaux university and local laser manufacturers, ALPhANOV provides the technical resources and expertise required to fulfil the R&D challenge of innovative collaboration with SMEs and laboratories. Located in the Bordeaux area, ALPhANOV conducts scientific research in photonic technology in collaboration with academic laboratories from the Bordeaux University.

The candidate will be in charge of developing state-of-the art, femtosecond laser sources in the mid-IR for advanced scientific applications. He/she will work on different laser technologies such as fiber lasers, solid state lasers and in particular with Ho-doped ceramics and develop laser oscillators, regenerative amplifiers and more generally CPA architectures. A particular attention will be paid to demonstrate the potential of highly efficient compressors in the mid-IR based on gratings developed within the GREAT project.

Main duties

- Designing, implementing and validating state of the art laser systems based on both fiber and bulk technologies for femtosecond mid-IR applications
- Develop novel concepts of laser amplifiers based on doped ceramics
- Manage and optimize dispersion for short pulse amplification
- Characterize highly efficient gratings at 2 μm for ultrashort pulse compression.

Candidate profile

He or she should be graduated (Master 2, Engineer School or equivalent) and have strong knowledge in fundamental physics and good skills in instrumentation. Additional expertise in linear and non-linear optics as well as in laser physics is highly recommended.

Applicants must also satisfy the eligibility requirements for ESR under the EC Horizon 2020 Innovative Training Network Program; in particular they should be eligible to be appointed as ESR in France – this means:

1- To have less than four years research experience after Undergraduate/Masters graduation (this is cumulative research experience and does not include management/industrial or other work experience).

- 2 - To not hold a PhD degree (PhD candidates under 4 years of registration and before completion may apply).
- 3 - To not have resided or carried out their main activity in France for more than 12 months in the three years immediately prior to their recruitment.

For more information about the project and the Marie Curie ITN Early Stage Researcher (ESR) status, please visit <https://euraxess.ec.europa.eu/jobs/367020>

Applications from EU countries will be strongly favored

Interested candidate should send a letter of motivation, a resume and 2 reference letters to loic.deyra@alphanov.com and eric.cormier@u-bordeaux.fr