

Post-doc in advanced ultrafast laser beam engineering and processing

(Duration: 12+13 months, starting as soon as March 2023)

Laboratoire Hubert Curien, CNRS UMR 5516; Université Jean Monnet (UJM), St-Etienne, France

Background: . In various optical applications, optical substrates require antireflective (AR) thin layers to avoid parasitic reflexions. The AR function requires specific topography micro/nanoscale features. The project seeks to investigate the possibilities of femtosecond (fs) laser processing to enable a new architecture of multifunctional optical surface.

Objectives: An advanced technological process based on fs-laser patterning enables the design of sub-wavelength structures on optical substrates such as glass, silicon and germanium, for mid-wave infra-red and long-wave infra-red applications respectively. The challenge lies in the conception and validation of a laser surface patterning platform for the realization of a dense array of high aspect-ratio single digit μm -scale holes (up to 250 000 units/ mm^2), in single or sometimes multiple-layered material surface. Once the feasibility demonstrated, the aim is to upscale the capacity of the structuring process and to move towards an ultrafast laser patterning platform of curved surfaces.

Candidate profile: The successful candidate must be a team player, results-driven, and self-initiator. He/she should hold a doctorate degree in physics / optics, with a good track record in laser material interactions, especially ultrafast laser processing ultrafast optics, and laser-induced ultrafast phenomena. A list of key merits is summarized:

- Experience in laser spatial beam shaping and optics design is highly appreciated
- Experience in OPA (optic parametric amplifier) operation and application would be a pre
- skills in material science to ensure a good level of exchange with partnership specialists from other scientific fields and industry
- Chemistry, laser-assisted etching
- Programming skills in synchronizing scanners, laser electronics and translation stages are also regarded as a pro

Practical information:

Location: The lab is located in Saint Etienne, France

Remuneration: Net monthly salary 2100~2500€, depending on experience and skills. Public transport compensation and dedicated health care packages will also be available.

Application: Customary documents such as motivation letter, CV and recommendation letters/contacts should be made to the contact person indicated below. (Note: The Hubert Curien Laboratory is a restricted access area. The fellowship is conditioned by a security clearance, to be applied for during the application (two months process time). To apply for a security clearance, we need the following documents: exhaustive CV, passport copy)

Contacts:

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