Call for application

Tenure-track Junior Professor Chair

Title: Smart light: metasurfaces, materials and ultrafast laser processes
Disciplinary field(s): Physics
Key words: Optical and plasmonic properties, Surface nanostructuring, Modeling and simulation, Electromagnetism, Photonics, Future technology, Surface physics
CNU sections: 30-28
Status in which the candidate is destined for tenure: Professor
Department: Télécom Saint-Etienne
Laboratory: Laboratoire Hubert Curien, UMR CNRS 5516
Project duration: 5 years

Funding associated with the Chair

The funding of the CPJ includes the salary of the Chairholder set at a minimum level of 41,331 euros gross per year, 200,000 euros of ANR funding and 135,000 euros of UJM complementary funding.

Research

Presentation of the host laboratory
The Hubert Curien Laboratory is a joint research unit of the University of Saint-Étienne, the CNRS, and the Institut d'Optique Graduate School. It is composed of about 250 members, including 100 researchers and lecturer-researchers, 30 engineers, administrative and technical staff, and more than 120 PhD and post-doctoral students. It is the largest research structure in Saint-Étienne. Its activities are structured into two scientific departments, "Optics, Photonics, Surfaces" (OPS) and "Computer Science, Security and Images". The Junior Professor Chair (CPJ) will be attached to the OPS department at the interface of activities relating to laser-matter interaction and the functionalization of materials and surfaces.

Research project within the framework of the Junior Professor Chair
Societal developments in energy transition, health, safety, and related industrial transitions require innovative materials design and high-performance, high-precision manufacturing techniques, including metasurfaces and ultrafast laser manufacturing. At the heart of technological innovation, the challenge of digitizing processes via artificial intelligence with a predictive strategy for the generated function will enable a key technological leap forward for proposing the next generation of tools, processes, and multi-structured surfaces; a research area in which the Hubert Curien Laboratory plays a pioneering role. The objective is to integrate predictive approaches for the creation of multifunctional surfaces at extreme scales by combining laser-matter interaction, photonic technologies, and AI.
The recruited person will be responsible for coordinating predictive simulations of metasurfaces, their physicochemical properties in general, and their electromagnetic response in particular.

Teaching

Summary of the teaching project in the host department
The design of innovative photonic systems in industry, as well as the design of surfaces functionalized by optical treatments, require new generations of engineers to master advanced physical modeling approaches and artificial intelligence techniques. This Chair will bring expertise in these areas to the training of Télécom Saint-Etienne engineers and, in particular, strengthen the teaching of data science around the coupling between learning techniques and physical models. This cross-disciplinary approach is essential to meet the innovation needs of national and international companies in the fields of photonics and surface design.

Science and society
Given the fields of application, the project will have a strong potential for societal impact in areas linked to energy, information and health. Members of the Laboratoire Hubert Curien are regularly involved in communicating with the general public at a wide range of events: *Les Echappées inattendues festival, European Researchers' Night, Fête de la science, ramène ta science, pint of science, science & you*... In partnership with La Rotonde, Saint-Etienne's scientific cultural center, and the Scientific, Technical and Industrial Culture Department of the Université Jean Monnet, the CPJ will develop and strengthen the laboratory's public relations activities.

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Candidates interview procedures

- A selection committee will review the applications and select the candidates it wishes to interview. The shortlisted candidates will be auditioned.
- Each audition will last 60 minutes, starting with a 30-minute presentation of the candidate's scientific and educational background, of which at least half will be devoted to his/her motivations, his/her research and teaching projects, and will conclude with a 30-minute discussion with the selection committee members.
- Situation: The candidates will have an additional 5 minutes to demonstrate their ability to integrate into the teaching team at Télécom Saint-Etienne by proposing two or three directions for innovation in the engineering curriculum related to the theme of the CPJ. The training program of the engineering school will be provided along with the invitation to the interview.
- At the end of the hearings, the committee will decide on the merits of the candidates, taking into account the quality and originality of their research projects, their motivations, their forward-looking vision of the field and their scientific and teaching skills.

Contacts

Research: Razvan STOIAN - razvan.stoian@univ-st-etienne.fr
Teaching: Prof. Bruno SAUVIAC - bruno.sauviac@univ-st-etienne.fr

The Hubert Curien Laboratory is subject to a restricted access regime ("Zone à Régime Restrictif" - ZRR). As such, the recruitment of the selected candidate will be subject to an approval given by the *Haut Fonctionnaire de Défense et de Sécurité*, on the basis of a pre-application submitted to the French Authorities.

Applications submission procedures and deadline :

https://www.univ-st-etienne.fr/fr/direction-des-ressources-humaines/recrutement-et-concours/chaires-juniors.html
https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm

Reminder : Conditions to be fulfilled by the candidates:

There are no age or nationality requirements to apply for this position.

Candidates must hold a doctorate or a degree whose equivalence is recognized by the university's restricted academic council, in accordance with the procedure set out in article 5(1) of decree 2021-1710 of December 17, 2021.

In accordance with the provisions of the decree of February 6, 2023, the list of documents to be attached to the application file is as follows:

- Identity Document with photo identification;
- Proof of possession of a doctorate, as provided for in article L. 612-7 of the Education Code, or of a diploma whose equivalence is recognized in accordance with the procedure set out in 1° of article 5 of the aforementioned decree of December 17, 2021;
- Defense report for the submitted diploma, or a written statement from the institution certifying that no defense report was issued;
- Analytical presentation;
- Works, books, articles and achievements.

The administrative documents and thesis report that are written in whole or in part in a foreign language must be provided with a French translation, the conformity of which the candidate certifies on his or her honor. Failing this, the application will be declared inadmissible. The translation of the analytical presentation as well as the works, books, articles and achievements is optional.