



Two postdoc positions opened at CEA-Saclay (Paris, France)

in the field of **Experimental Attosecond Physics**

The Attophysics Group in Saclay is opening
two experimental postdoc positions for two years.

Scientific projects

Attosecond science, born in 2001, is getting to its maturity age with a series of applications where ultrafast electron and nuclear dynamics are monitored and controlled at ultimate time scales in atoms, molecules and solids. The Attophysics Group, that contributed a number of pioneering advances to the field, is equipped with a state-of-the-art attosecond facility, ATTOLab, a national platform for the study of ultrafast dynamics.

A number of projects are developed, ranging from the advance control of the attosecond emission properties to their applications in new types of spectroscopies.

On the control side, waveform synthesis based on frequency mixing (laser+OPA) is investigated to produce and control intense isolated attosecond pulses. Furthermore, new sources carrying controllable amount of orbital angular momentum (OAM) are developed and the associated conservation laws investigated [1,2].

On the application side, such beams open the possibility of a new type of spectroscopy, namely helical dichroism. Another important application is the investigation of attosecond delays in photoemission. Our recently developed "Rainbow Rabbit" technique, that allows reconstructing the buildup of a resonance during the first few femtoseconds following its excitation, opens new avenues in attosecond photoionization spectroscopy [3].

[1] Géneaux, R. *et al.*, 2016. *Nature Com.*, **7**, 12583.

[2] Gauthier, D. *et al.*, 2017. *Nature Com.*, **8**, 14971.

[3] Gruson, V. *et al.*, 2016. *Science*, **354**(6313), 734.

More at <http://iramis.cea.fr/LIDYL/BiblioATTO.php>

The successful applicants will work in tandem with two-three PhD students under the supervision of Pascal Salières and Thierry Ruchon. They will be given significant freedom to develop their own ideas in these topics. The successful applicants will further receive support from in-house theoretician (T. Auguste), and from external collaborations with theoreticians in Paris (LCPMR), as well as gas-phase and solid-state experimental physics groups. They will participate in joint experiments with users, gaining opportunities to enlarge their expertise. Screening of applicants will start immediately and continue until the positions are filled.

About the positions

Environment

- Our lab is part of the French consortium [ATTOLab](#) bringing together teams with state of the art expertise in intense femtosecond lasers, attophysics, ultrafast dynamics in gas phase and condensed matter.
- New building inaugurated in 2016 and state-of-the-art lab now fully operational.
- Two Ti:Sapphire lasers with 1 kHz/15W and 10 kHz/20W rep-rate/power, 17-23 fs duration and CEP stabilization up and running.
- Team of 10-15 persons with a high level of laser and technical support.
- Main lab located at CEA-Saclay (Paris suburb - 45 min public transport to Notre Dame de Paris). High concentration of scientists (Orsay University, École Polytechnique, LOA, Institut d'Optique, SOLEIL synchrotron) and a lot to enjoy outside!

Your qualifications

- Capabilities to work in a team & good communication skills
- Hands on experimental tasks / independent thinking
- High motivation
- Experience in attosecond physics or femtosecond lasers
- Atomic/molecular physics or surface science expertise is a plus

Benefits

- Salary determined from experience (\approx 3000 €/month gross salary)
- Health, pension and unemployment securities included
- Benefits from CEA (sports, housing, holiday's, public transport discounts)

Commitment for equality

Applications from persons of any gender will be considered equally. However, for equally qualified persons, we will foster the career of non-male applicants.

Please send your application (CV, publication list, address of 2 references) to:

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