Postdoctoral position: simulation of excitons in metal halide perovskite nanostructures

A full-time postdoctoral research associate position is available in the department of theoretical inorganic chemistry at Institut des Sciences Chimiques de Rennes (ISCR, **France**) for a talented and ambitious researcher. The position is funded through the **H2020 FETOPEN** under the **POLLOC** proposal that targets the development of a complete technology platform for universal photonic information processing based on exciton polariton condensates in microcavities with inorganic perovskites.

The postdoctoral fellow will be involved in the task dedicated to the **theoretical description of the excitonic properties** of perovskite nanomaterials, which further includes optical characterization performed by project partners from ETH and IBM Zürich as well as University of Southampton. This implies a close collaboration between CNRS and partners developing the perovskite materials[1] and device architecture.[2] He/She will benefit from the expertize developed in Rennes on metal halide perovskites by physicists and chemists from ISCR and FOTON Institutes.[3] Local, national and international computing means will be made available for the purposes of the relevant project.

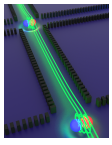
Starting date: 1 December 2020
Duration: 12 month (Contract renewal possible up to a total of 31 months)
Supervisor: KATAN Claudine (https://publons.com/researcher/1389063/katan-claudine/) and EVEN Jacky (https://cv.archives-ouvertes.fr/jacky-even)
Salary: between 2600 and 3730 € gross monthly (depending on past experience)
Required level of education: PhD

A PhD Degree in Physics, Materials Science or related disciplines such as Chemistry is required. We are looking for a candidate with a strong background in solid state and semiconductor physics as well as quantum theories applied to solids. Specific background on the physics and simulation of excitons will be appreciated, including the resolution of the Bethe-Salpeter equation by DFT-based methods. Complementary skills in material science, such as mastering concepts and tools relevant for low-dimensional structures (quantum dots, colloidal nanostructures, 2D materials), and/or in simulation code development with expertise in programming tools (e.g. Python, MATLAB, C, Fortran, parallel computing,...) are desirable. The candidate shall be able to demonstrate his/her expertise in the above-mentioned fields through publications in high quality, peer reviewed journals. A good command of English, both spoken and written, is mandatory for efficient interaction with members of the POLLOC consortium. Autonomy and communication skills are also expected to participate in our project and benefit from the existing rewarding working atmosphere.

The applicant should use https://emploi.cnrs.fr/ job portal to submit his/her application; **applications sent by e-mail will be considered ineligible**. The file shall contain detailed CV, including a list of publications and communications, a motivation letter as well as contact information of two scientists for possible request of recommendation letters. The selection will start immediately and will continue until the position is filled.

[1] L. Protesescu et al. Nano Lett., 15, 3692 (2015); M. V. Kovalenko, et al., Science, 358, 745 (2017); G. Raino et al., Nature 563, 671 (2018).
[2] L. Kalinin et al. Phys. Rev. Lett., 120, 225301 (2018); A. Zasedatelev et al. Nature Photonics 13, 378 (2019).
[3] J.C. Blancon et al., Nature Communications 9, 2254 (2018); M. Fuet al. Nature Communications 9, 3318 (2018); P. Tamarat et al., Nature Materials 18, 717 (2019); Katan, C. *et al.* Chem. Rev. 119, 3140 (2019).

Institut des Sciences Chimiques de Rennes UMR CNRS 6226



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