



Post-doc position at Institut des Nanosciences de Paris

Starting date: as soon as possible

Project: The applicant will be working on two on-going research projects. One project deals with the study of superconductivity combined to Rashba spin-orbit coupling in 2D crystalline monolayers [1]. Such ultimately thin superconducting atomic monolayers furnish a versatile platform to study controlled magnetic or non-magnetic disorder effects on 2D superconductivity or to induce 2D topological superconductivity [2,3]. A second project deals with the study of correlated 2D materials hosting Mott physics on a triangular lattice [4]. This family of materials can be seen as providing model systems for correlated electron physics [5].

Research environment: The applicant will work in close collaboration with a PhD student, master student, several permanent researchers and engineers. The main experimental investigations will be carried out with a state-of-the-art STM working at 300mK in high-magnetic field under UHV. A VT-STM coupled to a preparation chamber will be also available for growth studies. The group is in close contact with leading theoreticians in the studied fields.

We are looking for a talented and motivated postdoctoral researcher interested in this experimental condensed matter physics project. An experience in low-temperature STM/STS or in superconductivity will be a strong advantage. A one year position is available, with possible extension. If you are interested please contact us (see emails below).

Related publications:

- [1] **Remarkable effects of disorder on superconductivity of single atomic layers of lead on silicon**, C. Brun et al. Nature physics 10, 444 (2014)
- [2] **Two-dimensional topological superconductivity in Pb/Co/Si(111)**, G. Ménard et al. Nature communications 8, 2040 (2017)
- [3] **Isolated pairs of Majorana zero modes in a disordered superconducting lead monolayer**, G. Ménard et al. Nature communications 10, 2587 (2019)
- [4] **Chiral Spin Texture in the charge-density-wave phase of the correlated metallic Pb/Si(111) monolayer**, C. Tresca et al. Phys. Rev. Letters 120, 196402 (2018)
- [5] **Long-Range Coulomb Interactions in Surface Systems: A First-Principles Description within Self-Consistently Combined GW and Dynamical Mean-Field Theory**, P. Hansmann et al. Phys. Rev. Letters 110, 166401 (2013)

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