



INSTITUT  
POLYTECHNIQUE  
DE PARIS

## Post-Doctoral position in Ultracold Quantum Matter Theory Center for Theoretical Physics, Ecole Polytechnique

The *Ultracold Quantum Matter* theory group lead by Prof. Laurent Sanchez-Palencia at the Center for Theoretical Physics of Ecole Polytechnique invites applications for a **postdoctoral position on the theory of ultracold quantum gases**. The position is for two years, with possible extension.

The group conducts theoretical research on ultracold quantum gases, quasicrystal and disordered systems, and out-of-equilibrium dynamics of correlated quantum matter. Information about recent works may be found on the group webpage at [www.uquantmat.fr](http://www.uquantmat.fr).

### Post-doc project

The physics of bosonic quasicrystals is gaining momentum with the development of quantum simulating platforms with photonic and ultracold atom systems. Such systems show fascinating properties at the interface of disordered and periodic systems. Recently, the group has made important contributions on localization and fractality [PRL, 2019], Bose-glass physics in 1D quasiperiodic systems [PRL, 2020], and 2D quasicrystals [PRL, 2021]. The projects aims at developing this line of research towards the dynamics of correlated bosons in quasicrystal structures, emerging super-quasicrystals, superfluidity, and many-body localization.

### Eligibility

We look for candidates with up to three-year experience after PhD. Strong education in Theoretical Physics and successful research experience in the physics of correlated quantum systems is expected. Expertise in advanced numerical techniques, such as quantum Monte Carlo or tensor network approaches, will be highly appreciated. Strong personal motivation, abilities to work in team and co-supervise PhD students, as well as strong communication skills are expected.

### Application procedure

Applications should be sent to Prof. Laurent SANCHEZ-PALENCIA ([lsp@cpht.polytechnique.fr](mailto:lsp@cpht.polytechnique.fr)). The application documents should include a Curriculum Vitae (with date of birth, e-mail address, complete academic and professional carrer), academic certificates, a complete publication list, a concise reasearch statement, and two reference letters.

### Dates

**Deadline for application : January 5, 2022**

**Decision : March 2022**

**Start date of contract : Between September and December 2022**