

Postdoctoral Scholar Opening Irène Joliot-Curie

Laboratoire de Physique
des 2 Infinis

Joint ANR/FAPESP BRAZIL-FRANCE *Ab initio* Optical Potentials for Few-Body Methods

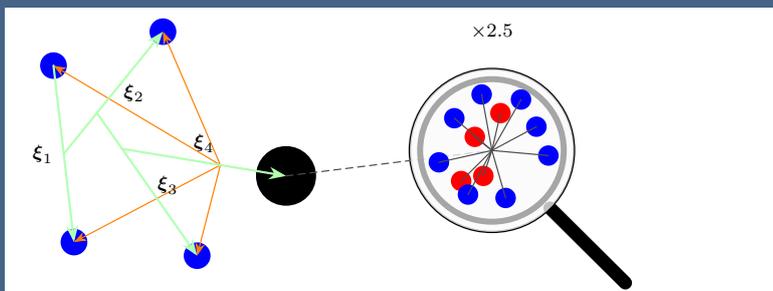
The opportunity

The joint CNRS–Université Paris-Saclay IJCLab invites applications for a **full-time, fixed-term postdoctoral position** in the Nuclear Theory Team.

The successful candidate will join the group of Dr. Guillaume Hupin (Co-PI) and contribute to the ANR-funded project *FCUBES: France–Brazil Collaboration on Universal Behavior of Exotic Nuclear Systems*.

FCUBES aims to connect state-of-the-art *ab initio* nuclear theory with few-body methods, leveraging complementary expertise within the consortium.

The core scientific objective is to develop and apply the *No-Core Shell Model with Continuum (NCSMC)* and its extensions to construct **high-fidelity microscopic optical potentials**. These potentials will be derived from advanced *ab initio* descriptions of nuclear structure and reactions, then **projected onto a reduced set of effective degrees of freedom** for use in standard few-body frameworks. In particular, they will provide input for **Faddeev-type calculations**, with consortium developments targeting **up to five-body final states**.



Scientific Context

The postdoctoral researcher will work within the FCUBES research program. This environment enables a strong two-way transfer of expertise in few-body methods, projects around the topic of universality, and AMO physics, which complement the programs core activities. The researcher will also carry out annual collaboration visits to Brazil, including the Instituto Tecnológico de Aeronáutica.

Growth trajectory

Ab initio methods



Microscopic optical potentials



Few-body methods



HPC & scientific software practices



Communication & collaboration



Beginner | Developing | Proficient | Advanced

anr

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Victor Navlet, General View of Paris, taken from the Observatory, in a balloon, 1855, oil on canvas (Musée d'Orsay).

Host Lab:

CNRS-Nucléaire et particules/IJCLab
Université Paris-Saclay

Main
collaborator:
Dr. G. Hupin

FCUBES PIs:
Prof. T. Frederico
Dr. R. Lazauskas

Apply at:

Dr. Guillaume Hupin