

Open Position @ LPENS
Post-doctoral Positions at LPENS

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The LPENS is seeking candidates for a two-year post-doctoral position in photoionization and shock modelling of Cool Core Galaxy Clusters, starting at the earliest in spring 2026 (later is possible). The successful candidate will carry out research within the ANR project VIEWS (Voyage into the Engine with the Webb teleScope).

The project aims to explore the interplay between Black-Hole feeding and AGN-feedback (star formation regulation by Active Galactic Nuclei) mechanisms in the core of massive galaxies. VIEWS leverages the capabilities of the James Webb Space Telescope cycle 3 project GO5018 to provide high-resolution imaging and spectroscopy of six selected Brightest Cluster Galaxies.

During the position, the applicant will combine state-of-the-art emission models for photoionized, photodissociated, and shocked gas (CLOUDY, Meudon PDR, and Paris-Durham codes) to disentangle the relative contributions of radiative and mechanical energy to JWST spectra. Using existing and newly computed model grids, the postdoc will develop an integrated framework to infer excitation conditions and quantify the impact of fast, tenuous shocks on ionized line emission. In parallel, high-resolution 3D MHD simulations of fast shocks interacting with dense interstellar clouds will be carried out with an advanced RAMSES code that includes time-dependent chemistry and radiative cooling. These simulations will self-consistently follow the transfer of mechanical energy, molecular excitation, and resulting emission—providing the first fully coupled view of how shocks shape the multiphase ISM and guiding the interpretation of JWST observations.

Applicants should have at least a PhD in physics, astronomy or related subject by the time of the appointment. We encourage applications from candidates with strong expertise in modeling or numerical simulations. The manipulation of state-of-the-art models of photo-ionisation and shock (e.g. Meudon-PDR, CLOUDY, MAPPINGS) would be an asset. Experience with manipulating multi-wavelength data will also be considered. Knowledge of extragalactic astrophysics is preferred. Skills in one or several programming languages (e.g. Python, Fortran, C++) are necessary.

The LPENS maintains a lively visitor program and hosts regular workshops and conferences throughout the year. The successful candidate will be immersed in an internationally visible research environment in the Paris Campus, with rich intellectual and computational resources.

The appointment is for 2 years with a salary including French social security benefits. Funding will also be allocated for travel.

Applicants should submit a CV (max. 2 pages), a publication list, a short review of previous works (2 pages) and a statement of research interests (2 pages). Applications should be sent via email to philippe.salome@obspm.fr.

For full consideration materials must be received before February 16th, 2026.

Included Benefits: French national medical insurance, Maternity/Paternity leave, Lunch subsidies, Family supplement for children, Participation to public transport fees, Pension contribution.