



## Postdoctoral position on weak gravitational lensing

The CEA Paris-Saclay astrophysics department is looking to fill a three-year postdoctoral position in cosmology. The successful candidate will join the interdisciplinary CosmoStat group and work within the ANR-funded project TOSCA. They will collaborate with TOSCA members at CEA, Nice, Caen, and Geneva, which includes Martin Kilbinger, Jean-Luc Starck, Martin Kunz, and others. The topic is weak-lensing statistics for cosmology, with a focus on investigating synergies between optical and radio surveys.

Weak gravitational lensing has become one of the most powerful probes to study the dark Universe and is a major observable for the upcoming experiments Euclid and SKA. Synergies between optical and radio wavelengths have the potential to reduce systematic errors to a level required for precision cosmology. The objective of TOSCA is to exploit these synergies by developing new radio weak-lensing methods making use of deep learning and extracting the joint cosmological information from surveys across different wavelengths.

This successful candidate for this position will contribute to the work on cosmological parameter estimation, develop new observables and statistical tools, and characterise systematics in both optical and radio weak-lensing data. Methods will be applied to existing data from the ground-based Ultraviolet Near-Infrared Optical Northern Survey (UNIONS) and to the first Euclid data. The postdoc will join the Euclid and SKA consortia.

The candidate should hold a PhD in astrophysics or a related field. Past experience in weak lensing, radio interferometry, or Monte-Carlo methods is a plus.

The position includes an internationally competitive salary and a generous travel budget. French language skills are not required.

Documents to submit:

- a curriculum vitae with publication list
- a research statement of around four pages
- a cover letter (optional; you will not be judged without it)
- three reference letters

The application material should be sent to Martin Kilbinger ([martin.kilbinger@cea.fr](mailto:martin.kilbinger@cea.fr)) and Jean-Luc Starck ([jean-luc.starck@cea.fr](mailto:jean-luc.starck@cea.fr)) no later than December 15, 2023.

CEA Paris-Saclay is located 20 km south of Paris, France. The CosmoStat group is a diverse and multi-disciplinary team of researchers working on various topics in astrophysics, cosmology, signal processing, and machine learning to solve challenging problems in cosmology using data science methods.

Our group is committed to diversity and equality and encourages applications from women and underrepresented minorities. We support a flexible and family-friendly work environment. Benefits for this position include retirement, health care, parental leave, vacation and sick days, subsidised meals, discounts for public transport, sports and culture, and French language classes.

- Contact and inquiries: Martin Kilbinger ([martin.kilbinger@cea.fr](mailto:martin.kilbinger@cea.fr)), Jean-Luc Starck ([jean-luc.starck@cea.fr](mailto:jean-luc.starck@cea.fr))
- Application Deadline: 15 December 2023
- Starting date: October 2024 or as early as April 2024
- Contract duration: 3 years