



ILANCE Internships Spring / Summer 2025

University of Tokyo

<https://ilance.cnrs.fr/>

The Franco-Japanese laboratory, dedicated to the physics of the two infinities, benefits from an exceptional scientific and cultural environment.

An on-site laboratory in Japan, ILANCE brings together researchers, students, post-docs, engineers and technicians from CNRS and Japanese institutions. The laboratory is made up of French scientists for long-term stays in Japan and Japanese physicists. Individual research grants are awarded for postdoctoral stays or doctoral thesis. The laboratory will also aim to welcome and support French scientists for temporary stays in Japan. Based on the Kashiwa campus in the northeast of the city of Tokyo, the ILANCE laboratory permanently hosts scientists from CNRS laboratories and from four departments of the University of Tokyo namely, ICRR, Kavli IPMU, ICEPP and the School of Science.

Connecting dark matter and galaxies with machine learning.

Event Dark matter (DM) is the greatest unsolved mysteries in cosmology and physics, and mostly hidden from the current observations. The DM distribution can be inferred from observed galaxy distributions, but their relation is complex. To learn the spatial correlation between DM and galaxies, we combine hydrodynamic simulations and machine learning techniques. Hydrodynamic simulations can predict the spatial correlation between DM and galaxies, which can be learned by state-of-the-art machine learning technique. This project aims to reveal the DM distribution in the real Universe using the current observation of galaxies

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