

Funded Internship in Tokyo on microplasmas

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Keywords: Plasma, hydrodynamic, microfluidic, microsystems

LiMMS is a joint international research laboratory, established in 1995 by the CNRS and the Institute of Industrial Sciences of the University of Tokyo. It covers research on micro-nanotechnology, building on complementary expertise ranging from physics and chemistry to energy and biology [1-3].

Plasma, the so-called fourth state of matter, plays a crucial role in many branches of physics and engineering, ranging from astrophysics and energy to space transport, healthcare or entertainment (plasma TVs). Plasmas are usually studied in meter-scale devices, but for many plasmas of interest, the characteristic scale (the Debye length) ranges from several millimeters to several nanometers – suggesting that the micrometer scale is a new and relevant scale to study.

Goal: The intern will study the physics of plasmas at the micrometer scale using simulations to highlight interesting physical regimes. The intern will explore designs for microsystems that could yield novel insights about the physics of plasma, with possible application in energy.

Intern profile: The intern should have a background relevant to plasmas (physics, engineering...). The intern should be familiar with numerical simulations. The intern will be supervised on-site in Tokyo by Dr Genot and Pr Kim (experts in microsystems) and remotely supervised by Pr Lesur (expert in simulation of fusion plasmas). Interns willing to pursue in PhD will be given priority.

New skills to be learned:

- Physics simulations
- Supercomputer calculations
- Data processing

Internship conditions

- 4 to 6 months between Feb and Aug 2024
- Targeted for Master students (~M1-M2)
- 60,000 yen/month

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References:

- [1] Genot, Nature Chemistry, 2016
- [2] Baccouche, Nature Protocols, 2017
- [3] Okumura, Nature, 2023

Application before 15/10 preferred

<https://limms-tokyo.org/open-positions/>



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LiMMS works with 16 U.Tokyo laboratories located mostly on the Komaba campus (close to the bustling Shibuya area). The supervision of the internship is done jointly by a French CNRS researcher, a U. Tokyo professor, and a French associate professor, which allows a total immersion in a Japanese laboratory while benefiting from a personalized supervision "à la française". It is not necessary to speak Japanese.

STAGES 3A/4A

