

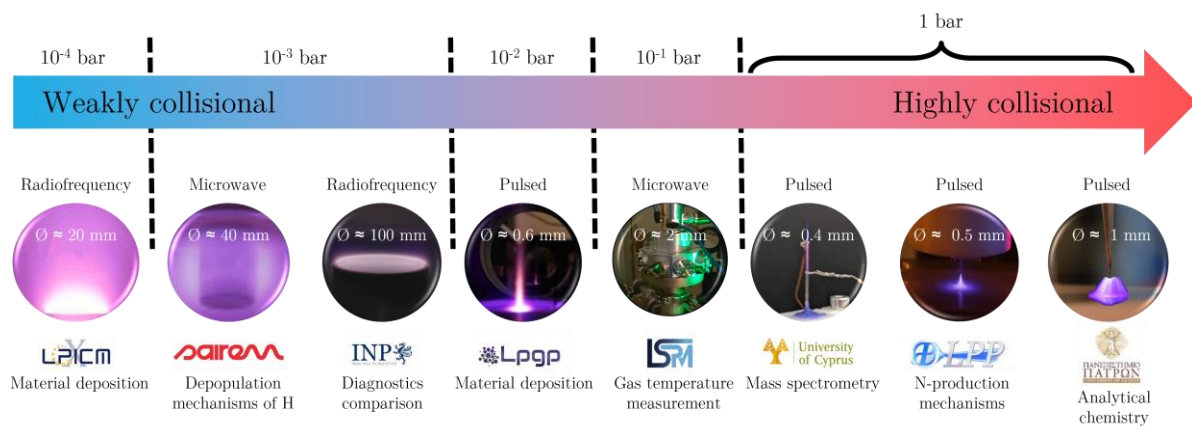
# Parcours d'un IR : de la thèse sur les plasmas froids aux diagnostics laser avancés

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The study of collisional non-thermal plasmas (NTPs) has gained significant momentum in recent decades, fueled by advances in high-resolution diagnostic techniques. Among these, laser absorption and optical emission spectroscopy stand out for their exceptional sensitivity and spatio-temporal precision.

The **Laser and Spectroscopy Diagnostics in PlasMas (LaSPM)** platform was established to address these challenges, providing advanced tools including ns and ps lasers for LIF (Laser-Induced Fluorescence) and TALIF (Two-Photon Absorption LIF) diagnostics. These allow precise determination of atomic and molecular densities as well as gas temperatures at ns and ps timescales. Hosted at the **LSPM laboratory (CNRS UPR3407)**, the platform is open to national and international collaborations. To date, it has supported around a dozen research groups working on a wide range of plasmas, from weakly to strongly collisional, generated in gases such as He, Ar/N<sub>2</sub>, O<sub>2</sub>, and air, using continuous, pulsed, sinusoidal, RF, or microwave sources, see **Figure 1** [1,2]. LaSPM operates two complementary laser systems: a ns laser with PMT detection and a ps laser with streak camera detection, ensuring optimized TALIF measurements and high-precision plasma diagnostics. A dedicated team of researchers, engineers, and technical staff supports visiting teams throughout their projects—from experiment design to data analysis and interpretation, and ultimately publication.



**Figure 1:** A selection of plasmas investigated using the TALIF technique within the LaSPM platform.

I will present my career path, starting with my PhD dedicated to the study of atmospheric-pressure cold plasmas, followed by several postdoctoral experiences, and leading to my current position as a research engineer. I will highlight my involvement in the creation and development of the LaSPM platform.

## Références

- [1] Srinivasan L, et al., Appl. Phys. Lett. 124 104101 (2024)
- [2] Wubs J R, et al., Appl. Phys. Lett. 123 081107 (2023)

**Statut : Permanent**