

## Atom Interferometry and Inertial Sensors

Tue, 2016-07-12 23:59 - [Franck Pereira dos Santos](#) [1] **Website:**  
<https://syрте.obsрm.fr/spip/science/iaci/> [2]

**Research Type:** Theory  
Experiment

The activity of the team Atom Interferometry and Inertial Sensors of SYRTE - Observatoire de Paris concerns the applications of atom interferometry to high precision measurements, and especially to the realization of inertial sensors. The principle of the duality between wave and matter postulates that to each particle a wave-packet (called de Broglie wave) can be associated, which can be manipulated in the same way as light in optics. For example, these atom wave-packets can be split or recombined to make them interfere. In an atom interferometer, the splitting between the two partial wave-packets associated to the same atom gives an extremely high sensitivity to inertial forces as acceleration and rotation. Our experiments use cold atom samples, cooled down thanks to lasers, which enable increasing drastically the measurement time and thus the sensitivity. One of the interest of atom interferometry arises from its ability to provide very stable and accurate measurements, which are required for use in various fields of application, such as inertial navigation, geophysics or fundamental physics.

**Leader:** Franck Pereira dos Santos

### Location

Paris Observatory Paris France  
48° 51' 23.8104" N, 2° 21' 7.9992" E

- [Quantum Engineering](#) [3]
- [Quantum Metrology, Sensing and Imaging](#) [4]

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