



**Postdoctoral position at Laboratoire Temps Espace (LTE)
“Atom Interferometry and Inertial Sensors” Team**

Delta Kick Squeezing for Atom Interferometry

The post-doctoral researcher will work on the implementation at LTE of measurement noise reduction methods below the standard quantum limit. He or she will implement more particularly the "Delta-Kick squeezing" (DKS) method, which relies on the engineering of atomic interactions. He or she will work on the implementation of this method in a free-falling atom interferometer, based on the use of Raman light beamsplitters and ultra-cold atoms produced by evaporative cooling.

The work, essentially experimental in nature, will consist in demonstrating the possibility of realizing strongly spin-squeezed states through atomic lensing methods based on pulse sequences realized with highly detuned high power laser beams. The postdoctoral researcher will study the impact of the use of these quantum states in an interferometer on the sensitivity of acceleration measurements. He or she will conduct the experimental studies and the analysis of the results. He or she will have extensive theoretical support for the modeling of the experiment, the optimization of the measurement sequence and for the analysis of the results.

The post-doctoral researcher will join the “Atomic interferometry and inertial sensors” team at LTE, a leading laboratory in the development of high sensitivity inertial sensors based on atomic interferometry, such as gravimeters and gyrometers, using cold atoms trapped or in free fall. He or she will work on an experimental setup operational today, under the direction of Franck Pereira dos Santos, Research Director at CNRS and team leader at LTE. Robin Corgier, who originally proposed the DKS method and who is now a permanent researcher in the team, will provide theoretical support.

Start date: Early 2026

Profile: The candidate should hold a PhD in physics and have strong experimental skills in laser physics, atomic physics, electronics and instrument control. Research experience in the field of cold atoms is mandatory. Any experience in the field of atomic interferometry will be highly appreciated.

Contact: Send CV, publication list, motivation letter and references to the project leader, Franck Pereira dos Santos, franck.pereira@obspm.fr