

Abstract Submitted
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Towards a Gyroscope with a Large Interferometer Area, Testing the Fundamentals of Physics FRANCK MICHAUD, THOMAS LEVEQUE, ARNAUD LANDRAGIN, Observatoire de Paris - SYRTE, ÉQUIPE GYRO SYRTE TEAM — After having investigate the limits of our previous inertial sensor using a cold atom interferometer of caesium in the all six axis of inertia [1], we project to built a brand new second and better version of interferometer, in order to improve the high accuracy and to be able to do some testing of fundamental physics (atomic neutrality, Aharonov-Bohm effect, electric polarisability) [2]. The new gyroscope will stand at 1 meter high, with a large sensing area and interrogation time. We expect also to use large momentum transfer beam splitter [3]. More details of the experiment under construction will be given.

References:

- [1] Six axis Inertial Sensor Using Cold Atom Interferometry, B. Canuel and al, Phys. Rev. Lett. 97, 010402 (2006)
- [2] How to test Atom and Neutron Neutrality with Atom Interferometry, A. Arvanitaki and al, Phys. Rev. Lett. 100, 120407 (2008)
- [3] Atom Interferometry with up to 24-Photon-Momentum-Transfer Beam Splitters, H. Müller and al, Phys. Rev. Lett. 100, 180405 (2008)

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