

# Bose-Einstein Condensate and Bragg diffraction for atom interferometry

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We are constructing an atom interferometer with a large momentum separation between the interferometer's arms. This would significantly improve atom gyroscopes and accelerometers sensitivities. Beyond inertial effects, in our group, we are interested in measurements where the macroscopic spatial separation between the two arms is essential. For example, measurements where the influence of fields between the two arms is studied such as geometrical phase shift used for atom neutrality tests or atomic polarizabilities measurements. During the poster session, I will describe our experimental setup: the all optical BEC source and the optical lattice used for Bragg beam splitters. I will present an experimental and numerical characterization of beam splitters in the quasi-Bragg regime. Two sub-regimes are identified, I will describe the required compromises for interferometric measurements and their consequences.

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