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I will report an atom interferometer based on quasi-Bragg diffraction in a fountain of ^{87}Rb Bose-Einstein Condensate. We demonstrated interferometers with momentum transfers to the atoms up to 200 photon recoils. We investigated the limitations of the beam splitters due to, spontaneous emission and the limited efficiency of the quasi-Bragg diffraction. In particular, we propose a comprehensive study of parasitic interferometers due to the inherent multiport feature of the quasi-Bragg beam splitters. We show that these parasitic interferometers can distort the estimation of the interferometer phase shift and visibility. The impact of these effects will be discussed and the insight gained from these investigations should guide the development of very large base atom interferometers.

Poster Abstract

Session Classification: Poster Session

Track Classification: Experimental - Tabletop experiments