Old Dominion University
Department of Physics
Colloquium

Tuesday, October 17, 2023

"Quantum inertial sensing with a cold atomic beam"

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Abstract:
Matter-wave interferometry using laser-cooled atoms has been shown to provide excellent sensitivity and stability in measuring inertial effects: accelerations, rotations, and gravity. As this technology transitions to practical applications, obstacles to operation in dynamic environments have become evident. These challenges can be resolved by the application of interferometer architectures that operate with high measurement bandwidth, zero dead time, and high sensitivity. I will describe our experimental demonstration of a continuous, spatial-domain atom interferometer using a 3D-sub-Doppler-cooled rubidium beam. In this system, dynamic control of atomic velocity and photon recoil direction provide an improvement in dynamic range and systematic error.

Presentation: OCNPS 200 @ 3:00 pm
Refreshments: OCNPS Atrium @ 2:30 pm

All interested persons are cordially invited to attend.