Old Dominion University
Department of Physics

Colloquium

Tuesday, October 28, 2014

"Extending the Coherence Time of an Atom Interferometer"

Dr. Frank Narducci
Naval Air Systems Command

Atom interferometers form the basis for precision measurements. These measurements are usually done in the pristine environment of a laboratory in a magnetic shielding on the so-called “clock” transition. We have been exploring the utility of atom interferometers for magnetic field detection. As such, our experiments are performed in an unshielded apparatus on magnetically sensitive transitions. We perform standard Ramsey and spin echo measurements and find a loss of contrast after approximately 100 microseconds. Due to sensitivity to pulse errors, we have applied novel pulse sequences to correct for pulse errors in order to extend the dephasing time of the interferometer by an order of magnitude.

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

All interested persons are cordially invited to attend.