

# ***Physics Colloquium Series***

## ***Compact Source Of Cold Atoms For Matter-wave Interference Experiments***

*We have designed a novel compact source of cold Cs/Rb atoms to perform matter-wave interference experiments in a quantum gravity gradiometer system. Compared to other cold-atom sources the source we present is extremely compact and uses little electrical and laser power to produce a very intense beam of cold atoms that follows the stringent specifications required in systems for space exploration. The unique design of the source allows the control of the flux, temperature, and velocity distribution of ultracold atoms in a robust manner. Recent experimental results characterizing the compact source, its limitations and advantages will be presented, together with a mathematical model and simulation results that show the unique features of having such a source for matter-interferometry and cold-collision experiments. Some other exciting possible experiments to perform using such a compact source of cold atoms will also be presented.*

***Jaime Ramirez-Serrano***

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**Thursday, March 17, 2005**

**4:00-5:20 PM MND 1015**

**OPEN & FREE TO ALL STUDENTS & FACULTY**