Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

A degenerate gas of Fermi atoms in a 1D optical lattice ANDREY TURLAPOV, KIRILL MARTIYANOV, VASILIY MAKHALOV, Institute of Applied Physics, Russian Academy of Sciences — We have prepared a gas of Fermi atoms trapped in the anti-nodes of a standing electromagnetic wave. The standing wave is created by 2 counterpropagating beams, which are focused on the same spot and have a wavelength of 10.6 microns. Each cell of the potential confines a disc-shape clouds of 8000 atoms of lithium-6 in 2 equally populated spin-states with the temperature $T < 0.1E_F$, where E_F is the Fermi energy. Due to the large period of the lattice, the density profile in each cell is imaged directly. The system is in the regime violating the local density approximation: Only the 3 lowest levels of the axial potential are populated. This experimental system may be used to study quasi-2D Fermi physics.

Andrey Turlapov
Institute of Applied Physics, Russian Academy of Sciences

Date submitted: 22 Jan 2010 Electronic form version 1.4