Progress towards observation of coherent backscattering from two microscopic clusters of trapped atoms

PASAD KULATUNGA, Hobart & William Smith Colleges — We report on the progress towards observing coherent back-scattering from two “sphere” clusters of trapped ultra-cold $^{85}\text{Rb}$ atoms. The two clusters of atoms are composed of two microscopic dipole traps, each consisting of few hundred atoms. Each trap will be approximately 5 $\mu$m in waist and are individually and dynamically configurable. The Coherent back-scattered signal is observed in an angular width of the order $1/kd$ where $k$ is the wavenumber and $d$ is the cluster (trap) separation. Ideally the back scattered peak should be a factor 2 greater than the background, any deviation from this is an indication of near-field effects.