

Trapping & Transport of Ultracold Strontium for Atom Interferometry

Bhavana Panchumarthi

Northwestern University, Illinois, USA

Sensing applications with ultracold atoms range from gravitational wave detection to timekeeping with optical clocks, as well as probing fundamental physical constants. In my presentation, I will focus on the Atom Interferometer Observatory Network (AION) project, a current UK-based collaboration aiming to build ultra-sensitive quantum sensors in search of new physics, including detection of mid-frequency gravitational waves and ultra-light dark matter. The talk will summarize the ongoing work with preparing fermionic strontium for interferometric measurements at the University of Cambridge as part of the AION collaboration. Specifically, I will highlight my contributions to the optical dipole trapping and red magneto-optical trap ($1S_0 \rightarrow 3P_1$) stages during my master's thesis there.