Open PhD position on test of quantum weak equivalence principle and study of cooperative effects

We have developed a strontium atom interferometer experimental setup with the ability to perform simultaneous dual atom interferometry using the $^1S_0$ and $^3P_0$ (meta)stable states of the strontium clock transition [1,2]. Together with a research team, the successful applicant will perform a quantum test of weak equivalence principle involving a coherent superposition of the two states. In addition, the applicant will study cooperative effects of light reflecting from a tailored lattice-trapped atoms, when probing the clock transition. The objectives are to explore superradiance emission on this ultranarrow transition with application in quantum metrology and to measure the lifetime of long-lived $^3P_0$ state.

We are looking for a highly motivated student with at least a bachelor's degree in physics or equivalent. Potential candidates should have a good background in quantum mechanics and electrodynamics, with a strong interest in experimental works involving optics and atomic physics.

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[1] J. Li *et al.*, "Bi-color atomic beam slower and magnetic field compensation for ultracold gases", AVS Quantum Sci. **4**, 046801 (2022).
[2] J. Li *et al.*, "Dual interferometry on an optical clock", In preparation (2024).