

## Quantum Physics

# Quantum metrology to probe atomic parity violation

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An entangled state prepared in the decoherence free sub-space together with a Ramsey type measurement can probe parity violation in heavy alkali ions like Ba+ or Ra+. Here I propose an experiment with Ba+ ions as an example to measure the small parity violating effect in this system. I will also show that the accuracy of such an experiment can be three orders of magnitude better for a day of measurement as compared to the single ion experiment.

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