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**Precision measurement for particle physics and cosmology**

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Axions and other light particles are strongly motivated. For example, the axion is the crucial element in the recently proposed solution to the hierarchy problem using dynamical relaxation in the early universe. However, such particles are challenging to search for experimentally. Precision measurement technologies such as atom interferometry, nuclear magnetic resonance, high precision magnetometry, and torsion balances allow novel, highly sensitive experiments for direct detection of such light dark matter and of gravitational waves. Thus precision measurement technologies open new avenues for probing the origin and composition of the universe.