Résumé :

Quantum Metrology" uses quantum information resources, e.g. entanglement, to improve the sensitivity of quantum-limited measurements. This field began by studying possible methods for gravitational wave detection beyond the shot-noise limit. There were theory proposals in the 1970s, then proof-of-principle experimental results in the 1980s, prototype instruments in the 2000s, and since 2011 there are full-scale gravitational-wave detectors applying quantum metrology in practice. Application of quantum metrology to atomic instruments is a very active area that could improve measurements of time, electric, magnetic, and radio-frequency fields, and acceleration. I will discuss the situation for quantum enhanced measurements of magnetic fields, including some proof-of-principle experiments, some open questions, and some challenges to the "standard model" of quantum metrology.

Une verrée en compagnie du conférencier sera offerte après le colloque.

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