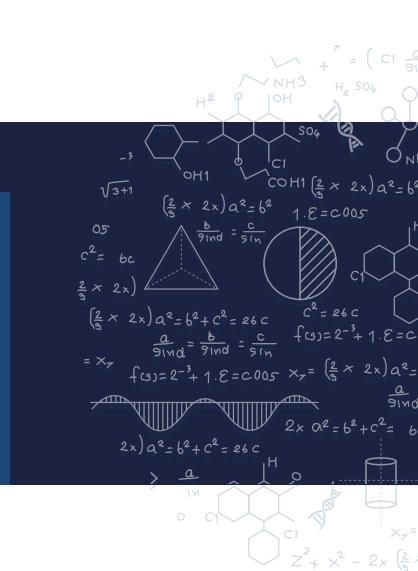


LICENSING OPPORTUNITY: QUANTUM SENSOR NETWORK AND MEASURING MULTIPLE FUNCTIONS WITH A QUANTUM SENSOR NETWORK



DESCRIPTION

Problem

Previous protocols achieved higher uncertainty for the same amount of time, or equivalently, achieved the same uncertainty but in a longer time.

Invention

It is an entanglement-based protocol to measure simultaneously multiple analytic functions of a set of parameters coupled to qubit sensors.

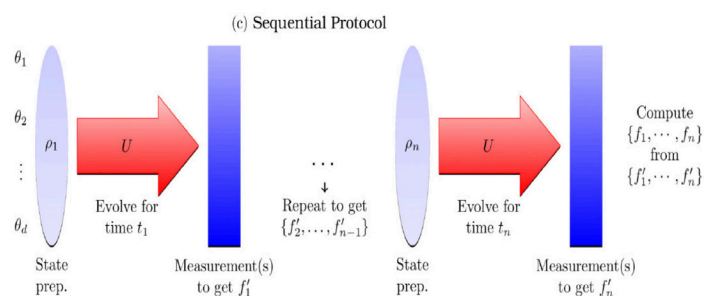
BENEFITS

Commercial Application

This protocol can be used to measure properties of spatially varying fields such as magnetic fields, electric fields, gravitational fields, and temperature, with applications in fields such as chemistry, medicine, biology, materials science, physics, geodesy, and geophysics.

Competitive Advantage

This protocol performs better (gives smaller uncertainty given a fixed time or, equivalently, achieves a desired uncertainty in shorter time) than previously known protocols.



Sequential protocols divide the problem into n time intervals, where each time interval is optimized to estimate a single function from the set $\{f'_1, f'_2, \dots, f'_n\}$, which may consist of linear combinations of the original set $\{f_1, \dots, f_n\}$.