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Academy of Mathematics and Systems Science, CAS Colloquia & Seminars

Speaker: 苗子博 博士,哈尔滨工业大学 (深圳)**Inviter:****Title:** Cooperation between Coherent Control and Noises in Quantum Metrology**Language:** Chinese**Time & Venue:** 2023.08.22 15:00-16:00**Abstract:**

In this work, the cooperation between coherent control and noises in open spin systems is studied, aiming to demonstrate that such cooperation can provide new possibilities for parametrization in quantum metrology. The cooperative scheme proposed here outperforms the standard scheme, with higher precision achieved. More specifically, the effect of cooperative interaction between coherent control and noises in conventional single-spin systems described by Lindblad master equations is illustrated, with the magnitude of a magnetic field taken as the parameter to be estimated and encoded in the noisy dynamics besides the Hamiltonian. Furthermore, it has been demonstrated that in the realm where quantum metrology is mostly applied in practice, the precision limit under the cooperative scheme in the presence of noises can surpass the ultimate precision limit under the unitary dynamics..

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