



复旦大学物理系 Colloquium

Time: 14:00, Tuesday, 2021.06.29

Location: Room C108, Jiangwan Physics Building

Quantum Enhanced Precision Measurement

(量子增强的精密测量)

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Abstract: The science of measurement is called metrology, which is fundamentally important in addition to providing support for standards and units. Measurement precision determines the level of our understanding and erects limits for established laws and theories governing the nature. Statistical inference of a parameter from measurements based on an ensemble of independent particles is lower bounded by the classical precision limit or the standard quantum limit (SQL). A number of quantum enhanced measurement paradigms will be introduced and illustrated with experiments carried out on atomic Bose-Einstein condensate (BEC). Atomic entanglement is deterministically generated and leads to reduced quantum noise in linear interferometry, time reversed quantum interaction is engineered for nonlinear interferometry to amplify signal, both demonstrating precisions beyond SQL.



CV: Li You, BS, Nanjing University, 1987; PhD, University of Colorado, 1993; Postdoc, Harvard-Smithsonian CFA, 1993-1996; Professor, Georgia Tech, 1996-2010; Cheung Kong Chair Professor, Tsinghua University 2005-2008; Professor, Tsinghua University 2009-present; ONR YIP Award (1997-2000); NSF Career Award (1997-2002); Fellow, American Physical Society, 2007; First award in the "2013 Awards for Essays on Gravitation", by the GRAVITY RESEARCH FOUNDATION. 2017年科技部中国科学十大进展: "利用量子相变确定性制备出多粒子纠缠态"。