# Weekly Seminar

## The geometric property of quantum states and its application on entanglement criteria

### 李卫东

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**Time:  4: 00 Pm, May. 29, 2019 (wednesday)**

时间：**2019年5月29日 （周三）下午4:00**

**Venue: Room  W563, Physics building, Peking University**

地点：北京大学物理楼，西563会议室

## Abstract

Detecting quantum entanglement plays a crucial role in next generation quantum technology. In this talk, we will show that the geometrical metric of quantum states could be a good candidate to theoretically quantify and experimentally detect quantum entanglement, and be understood as the statistical response of a quantum system to an arbitrary nonlocal parametric evolution. The bounds for witnessing quantum entanglement with local and non-local interaction are presented. And how two extract this nice concept from experimental data is introduced. Furthermore to illustrate its user friendliness we demonstrate multipartite entanglement in different experiments with ions and photons by analyzing published data on fidelity visibilities and variances of collective observables.
Related references:
1. L. P, Y. Li, **Weidong Li\***, and A. Smerzi, **PNAS** 113, 11459C11464 (2016);
2. Y. Li, L. P, **Weidong Li\*** and A. Smerzi, Phys. Rev. A 99, 022324 (2019)

## About the speaker

李卫东博士，  山西大学教授，博士生导师。2002年于中国科学院物理研究所获博士学位，同年赴意大利特兰托大学、玻色爱因斯坦凝聚研究中心从事博士后研究。先后在美国、法国、香港等国内外大学或研究机构从事短期合作研究。2008年入选教育部新世纪优秀人才计划。山西省科学与技术学科带头人。任中国核学会计算物理学会第七届理事、山西省物理学会第十届理事会常务理事。长期从事与超冷原子相关的量子问题研究，近年来关注量子精密测量中基本问题，作为主要理论研究人员参与国家重点基础研究发展计划（973）、教育部创新引智基地"111"计划、863计划等重大项目共5项，主持国家基金面上项目多项，共发表PNAS(1)、Phys. Rev. Lett.(4)、APL.(1)，NPJ：Quan. Info.(1)，Phys. Rev. A,B,E(22)等SCI收录论文80余篇,SCI引用约600余次。