



## OPEN TALK

Thursday, 7 August 2014 4:00 pm Fermion

Speaker

**Tanumoy Pramanik**

*(VASP Short Term Visitor to Prof. Archan S. Majumdar)*

Affiliation

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Title:

**Fine-grained EPR-steering inequalities**

Abstract:

We derive a new steering inequality based on a fine-grained uncertainty relation to capture EPR-steering for bipartite systems. Our steering inequality improves over previously known ones since it can experimentally detect all steerable two-qubit Werner state with only two measurement settings on each side. According to our inequality, pure entangle states are maximally steerable. Moreover, by slightly changing the setting, we can express the amount of violation of our inequality as a function of their violation of the CHSH inequality. Finally, we prove that the amount of violation of our steering inequality is, up to a constant factor, a lower bound on the key rate of a one-sided device independent quantum key distribution protocol secure against individual attacks. To show this result, we first derive a monogamy relation for our steering inequality.

*For more details, please go to <http://arxiv.org/abs/1404.7050>*

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