MATEMATISKA INSTITUTIONEN
STOCKHOLMS UNIVERSITET
Avd. Matematik

SJÄLVSTÄNDIGT ARBETE I MATEMATIK

Måndagen den 16 juni kl. 10.00–11.00 presenterar Armin Tavakoli sitt arbete "Quantum Nonlocality in Star-Network Entanglement Swapping Configurations" (15 högskolepoäng, grundnivå).

Handledare: Antonio Acín och Rikard Bögvad

Plats: Sal 32, hus 5, Kräftriket

Sammanfattning: Entanglement swapping is a quantum mechanical process in which spatially separated initially independent entangled quantum systems can be subject to nonlocal correlations. This thesis aims to study quantum correlations in entanglement swapping scenarios in a broad class of star-networks. We introduce a nonlinear assumption of local realism from which we characterize classical correlations. We present new Bell inequalities for entanglement swapping configurations in several star-networks and show that our inequalities are tight with respect to local realist correlations. In addition we show how to close the freedom-of-choice loophole. Quantum violations are provided for our inequalities and their various properties are extensively studied. Furthermore we study the behaviour of quantum correlations in the presence of experimental imperfections restricted to inecient detectors and white noise tolerance.

Alla intresserade är välkomna!