



ICTS Condensed Matter Seminar (HYBRID)

Title : Quantum Games

Speaker: Diptiman Sen (Indian Institute of Science, Bengaluru)

Date : Thursday, 22nd February, 2024

Time : 03:45 PM (IST)

Abstract : There are some two-person games where quantum strategies can outperform classical strategies. One example is a coin-flipping game, alternating between players Q and C. Q possesses a quantum strategy which always ensures victory, irrespective of C's classical strategy. This provides the simplest example of a quantum error correction code.

Another instance involves a yes/no question game which is related to the Clauser-Horne-Shimony-Holt and Bell inequalities. The best classical strategy attains a $3/4$ success rate, but a quantum strategy surpasses it with a 0.854 success rate.

In the well-known prisoner's dilemma, the best classical strategy aligns with a Nash equilibrium but it is not Pareto optimal. In contrast, there is a quantum strategy which is both Pareto optimal and is at a Nash equilibrium.

This talk will be at an elementary level. I will assume only a basic knowledge of two-state systems in quantum mechanics, and no knowledge of game theory.

Venue : Offline: Chern Lecture Hall

Online: Please click on the below link to join the seminar

<https://icts-res-in.zoom.us/j/99445250208?pwd=N1N4Z2JvWlBqNFQyY2R2QkpBY0g2UT09>

Meeting ID: 994 4525 0208

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