ICTS MONTHLY COLLOQUIUM

36 entangled officers of Euler – A quantum solution to a classically impossible problem

The 36 officers problem of Euler is a well-known impossible classical combinatorial puzzle and involves orthogonal Latin squares akin to the popular game of Sudoku. I will discuss the history around this and show how a natural quantum construction of orthogonal Latin squares leads to solutions that are classically impossible. The solutions lead to constructions of so-called absolutely maximally entangled states that are of relevance to quantum information and many-body physics.

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Arul is a theoretical physicist with a Ph. D. from Stony Brook, N.Y. (1993). He was a Postdoc. and later faculty at the Physical Research Laboratory, Ahmedabad, during 1993-2003. He joined the faculty of IIT Madras in 2003. Long-term visiting appointments were at Washington State University, Pullman (1998), IIT Kanpur (2002), and Max Planck Institute for the Physics of Complex systems, Dresden (2007, 2015). Part of his Research interests: quantum chaos, quantum information, quantum walks, many-body systems, quantum-classical correspondence, mathematical physics and random matrices. Among other things, he played a pioneering role in studies on many-body quantum entanglement in integrable and non-integrable systems.

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