



Department of Physics  
Sharif University of Technology

## Lecture course on "Quantumness and Multipartite Entanglement"



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This lecture course will focus on the notion of quantumness and on multipartite entanglement. The level will be elementary, but we shall endeavor to enable all interested students to do independent research on these subjects.

- **Lectures 1 and 2:** Quantumness and Classicality.

We shall follow an algebraic approach: the difference between classical and quantum systems is due to the structure of their states and observables. We shall explore the notion of quantumness and shall propose a way to witness it. An operational approach will be introduced.

- **Lectures 3 and 4:** Maximal Multipartite Entanglement.

We shall introduce the notion of entanglement and some entanglement measures. Bipartite entanglement is well understood, but no general definition exists of multipartite entanglement (among many parties). We shall look at multipartite entanglement and search for maximally multipartite entangled states.

Lecture 1	1 June 2013	16:30-18:30
Lecture 2	2 June 2013	10:30-12:30
Lecture 3	2 June 2013	16:30-18:30
Lecture 4	3 June 2013	16:30-18:30

Location: Room 412.  
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