



School of Nano Science



IPM Condensed Matter &
Statistical Physics Group

Weekly Seminar

Demonstration of quantum supremacy using quantum optics

Invited speaker:

Dr. Saleh Rahimi-Keshari

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Abstract:

It is believed that quantum computers can perform certain computational tasks much faster than classical computers. A universal quantum computer, however, is still not available, so there is great interest in intermediate models of quantum computation that can perform a task beyond the power of any classical supercomputer, a landmark known as “quantum supremacy”, with much simpler physical systems and algorithms. In this talk, I will discuss recently proposed quantum-optical protocols for demonstration of quantum supremacy. Specifically, I will introduce boson sampling and its generalized version, randomized-boson sampling, and show some recent results about these quantum protocols. I will also introduce an interesting application of entanglement in converting randomized-boson-sampling experiments to classically simulatable problems that enables us to efficiently characterize the experiment.

Wednesday, 23 Mordad 1398 (August 14, 2019), 14:00-15:00

Seminar Room (Classroom A), Farmanieh Building, IPM