

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"High-Dimensional Disorder-Driven Phenomena in Weyl Semimetals,
Semiconductors and Related Systems"

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Abstract: It is commonly believed that a non-interacting disordered electronic system can undergo only the Anderson metal-insulator transition. In this talk I will demonstrate that a broad class of systems can display disorder-driven transitions distinct from Anderson localisation that have manifestations in the disorder-averaged density of states, conductivity and other observables. Such transitions have recently received particular attention in the context of recently discovered 3D Weyl and Dirac materials but take place also in cold-atom systems with long-range interactions, quantum kicked rotors and all sufficiently high-dimensional systems. I will demonstrate also that such systems exhibit unconventional behaviour of Lifshitz tails, energy-level statistics and ballistic-transport properties.

S.V. Syzranov, L. Radzihovsky, arXiv:1609.05694

S.V. Syzranov, L. Radzihovsky, V. Gurarie, PRL 114, 166601 (2015)

3:00pm
Tuesday, October 4, 2016
Duboc Room (4-331)