

# **A theorist's journey through carbon nanotubes, graphene and other two-dimensional materials**

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The purpose of my talk is to reveal some close analogies and contrasting differences between carbon nanotubes, graphene and a few other emerging two-dimensional systems. I will compare the concepts of chirality of carbon nanotubes and graphene edges showing some recent experimental observations [1-3]. The similarities of electronic transport phenomena across carbon nanotube junctions and grain boundaries in polycrystalline graphene will be discussed [4,5]. Finally, I will cover the two-valley physics of two-dimensional semiconductors like MoS<sub>2</sub> and the topologically protected Dirac fermion states found at the surfaces of the recently discovered bulk topological insulators.

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