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### **Graphene and the Magic of Physics in Two Dimensions**

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Since its first scotch-tape extraction from graphite in 2004, Graphene - a one atom-thick crystal of carbon - has metamorphosed from the poor relative of diamond into a wonder material. By now it has amassed an impressive string of superlatives lightest, thinnest, strongest etc. and it is rapidly moving from research laboratories into industrial, medical and electronics applications. Furthermore, graphene has recently spawned a new class of two dimensional materials which can be stacked together to engineer bespoke electronic properties. For physicists much of the continuing excitement about graphene stems from its exotic charge carriers - Dirac fermions - which resemble two dimensional massless neutrinos. I will review the physics of graphene with emphasis on its unusual electronic properties and will describe the experiments and techniques which provided access to the two-dimensional world of Dirac fermions, their interactions with each other and with the environment.