

# Graphene: Structure, Properties and Applications

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25th November 2009

10:00 s.t., Seminar-Room T1 (1.3.21)

With a thickness of one atom graphene, a monolayer of carbon atoms, is the thinnest material ever known and shows extraordinary electronic and even more non-electronic properties containing many superlatives. The discovery of graphene in 2004 opened a new field in physics, experimental as well as theoretical, since 2D crystal where thought to be thermodynamically unstable and have never been observed before. It enabled physicists for example to prove the theoretical expected behaviour of the charge carriers in graphene, which mimic relativistic, massless Fermions. However, there are still many unsolved problems and the material is quite unexplored up to now which attracts the attention of many scientists. Hence, several papers concerning graphene and especially its electronic properties are published per day. In this talk an overview over this exciting new material with a focus on graphene as a 2D electronic system will be given. Furthermore i will present its unique non-electronic properties and some of its possible prospective applications.

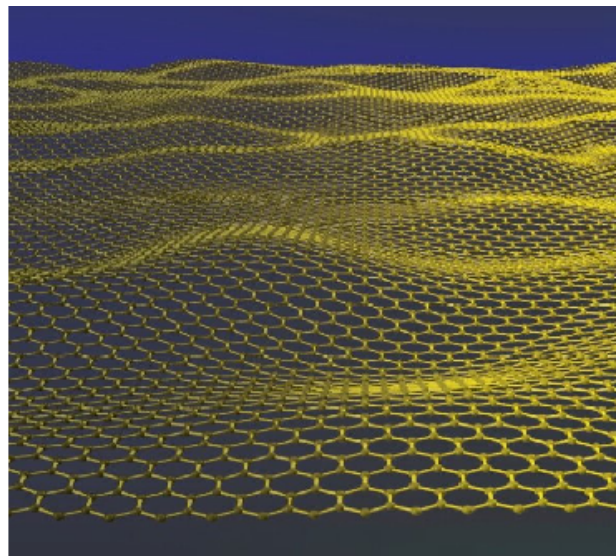
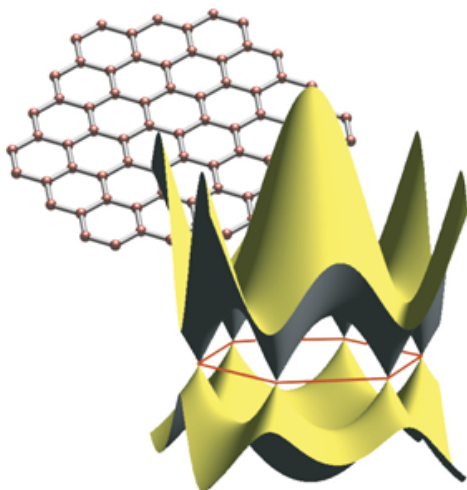


Figure 1: left: Graphene and its bandstructure; right: Crumpling of a graphene sheet

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