

Colloquium Cukrovarnická

V úterý dne 18. října 2016 v 14:00 hod.
ve Fyzikálním ústavu Cukrovarnická v seminární místnosti
(budova A, 1. patro)

Physics of artificial graphene



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Artificial graphene is a man-made nanomaterial that can be constructed by arranging molecules on a metal surface or by fabricating a quantum-dot lattice in a semiconductor heterostructure. In both cases, artificial graphene resembles graphene in many ways, but it also has additional appealing features such as control over the lattice constant, system size and geometry, and edge configuration. Here we present our computational results on the electronic structure of artificial graphene, the Dirac point formation, and its response to an external magnetic field, as well as the role of electron-electron interactions. We also focus on the chaotic properties of soft Lorentz gas -- the classical counterpart of artificial graphene. Finally, we make a quick review of computational methods used in our group for quantum statistical and multidisciplinary problems.

J.J. Mareš, ved. sekce 3
