QSIT LECTURE

Quantum Science and Technology
National Centre of Competence in Research

Special lecture for master and PhD students
Tuesday March 22, 2011, 15:45 h – 17:30 h, HPV G5

Carlo Beenakker, Instituut-Lorentz, Leiden University, The Netherlands

What is special about graphene

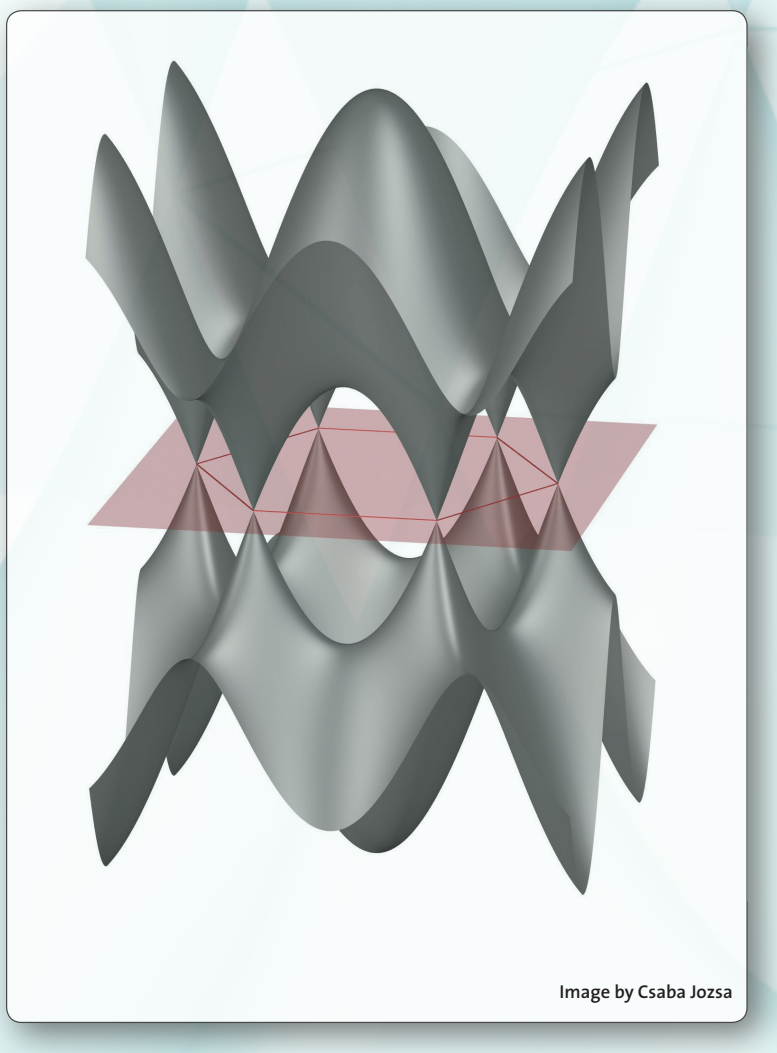

Image by Csaba Jozsa

Graphene is a realization of „nano chicken wire“: a plane hexagonal lattice of carbon atoms. It has been studied by theorists as an academic exercise for half a century, but it was only shown recently to exist in nature as a stable form of carbon. The dynamics of conduction electrons in graphene is the same as that of relativistic massless particles, with a velocity that is 300 times smaller than the speed of light. The appearance of concepts from relativistic quantum mechanics in condensed matter physics is unusual, and provides an entirely new and suprising phenomenology. Whether or not these new phenomena have useful applications, in particular for carbon-based electronics, remains to be seen, but there is certainly much interesting physics to explore - as we hope to show in this introductory lecture. This lecture also serves as background for the colloquium on March 23, which deals with „topological insulators“ - also known as „¼ graphene“.

Host: Klaus Ensslin and Thomas Ihn

Tea and Coffee at 15:15 h
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