



Universidad
Carlos III de Madrid

Seminario del Instituto Gregorio Millán

Analysing the structure of graphene at the atomic level.

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Abstract

Defects in graphene influence its electronic, chemical, magnetic and mechanical properties. In this talk I will discuss how we can study defects and their impact on the structure of graphene at the single atom level. We produce synthetic graphene by chemical vapour deposition and transfer it to TEM grids for analysis. Using Oxford's JEOL 2200 HRTEM fitted with spherical aberration correctors and a monochromator for the electron gun, we can achieve 80pm spatial resolution at a low accelerating voltage of 80kV. We have developed techniques to introduce defects in a defined spatial location with 10nm precision and study their stability and dynamics. Edge dislocation pairs are formed by sputtering carbon atoms along the zigzag direction and lead to substantial distortion of the lattice. We map out the strain sensors from these dislocations using geometric phase analysis. These results provide some of the most detailed knowledge to date on the true atomic form of defects in graphene.

Día y hora: Viernes, 30 de noviembre de 2012 a las 12:30 horas

Lugar: Sala 2.1.C19 (Edificio Sabatini), Universidad Carlos III