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Lattice defects and electronic properties of graphene FRANCISCO GUINEA, Instituto de Ciencia de Materiales de Madrid. CSIC, NUNO M.R. PERES, Universidade do Minho. Portugal, ANTONIO H. CASTRO NETO — We analyze the electronic properties of graphene. Extended lattice defects, and deviations from electron-hole symmetry, lead to self doping, and to a finite Fermi surface. Point lattice defects give rise to a finite inverse elastic lifetime at low energies, and to a universal value of the dc conductivity at low frequencies or temperatures. Transport properties at optical frequencies are also investigated.

Francisco Guinea
Instituto de Ciencia de Materiales de Madrid. CSIC

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