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Moire patterns in graphene bilayers: electronic structure[1] JOAO LOPES DOS SANTOS, CFP, Dep Fisica, Faculdade Ciencias, Universidade do Porto, NUNO PERES, Departamento Fisica, Universidade do Minho, ANTONIO CASTRO NETO, Department of Physics, Boston University, EDUARDO CASTRO, CFP, Dep. Fisica, Faculdade Ciencias, Universidade do Porto — Moire patterns, resulting from a small angle rotation of the top layer have been observed in graphite [1]. We consider a similar situation in a graphene bilayer. We determine the angles for which the resulting structure is periodic and study its symmetries. We develop a general formalism for the calculation of the electronic properties at low energies (close to the Dirac points of the uncoupled bilayers) and for small rotation angles, based on a continuum approximation for the uncoupled layers. We discuss the resulting electronic structure and possible consequences for transport properties.
[1] Z. Rong and P Kuiper, Phys. Rev B. 48, 17427, (1993)

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Joao Lopes dos Santos
Universidade do Porto

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