

24. Curricular Unit

Advanced Physics Topics 1

Module

Twisted Graphene Bilayer; Electronic Properties

Type

Tutorial

Contact hours

18

Professor/Researcher in charge

João Lopes dos Santos

Summary of Contents

The graphene bilayer: models for electronic structure.
The Twisted bilayer. Geometry and Commensurability.
Models for electronic structure: the continuum model for low twist angles.
Experimental evidence from STM spectroscopy and Raman scattering.

Evaluation

Written report and oral presentation

References

J. M. B. Lopes dos Santos et. al., Continuum model of the twisted graphene bilayer, *PHYSICAL REVIEW B* **86**, 155449 (2012)

Guohong Li, Observation of Van Hove singularities in twisted graphene layers, *NATURE PHYSICS*, VOL **6**, p109, (2010)

A. Luican, et al. Single-Layer Behavior and Its Breakdown in Twisted Graphene Layers. *Phys. Rev. Lett.* **106**, 126802 (2011)

Rafi Bistritzer and Allan H. MacDonald, Moiré bands in twisted double-layer graphene, *PNAS* vol. **108** no. 30 12233–12237, (2011)

K. Sato et al , Zone folding effect in Raman G-band intensity of twisted bilayer graphene, *PHYSICAL REVIEW B* **86**, 125414 (2012)

Brihuega, I. et. al. , Unraveling the Intrinsic and Robust Nature of van Hove Singularities in Twisted



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Bilayer Graphene by Scanning Tunneling Microscopy and Theoretical Analysis, PHYSICAL REVIEW LETTERS, **109**, (2012)

Jury

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