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Theory of twisted graphene bilayers near commensuration HRIDIS PAL, STEVEN CARTER, MARKUS KINDERMANN, Georgia Institute of Technology — It has been predicted [1,2] that a gap can arise in the Dirac spectrum of commensurately twisted graphene bilayers. Hitherto that gap has not been observed experimentally since it is difficult to produce samples with a specified twist angle. This motivates us to construct a long wavelength theory of almost commensurately rotated graphene bilayers. The theory inherits its structure from the exactly commensurate bilayer that it is close to. It thus makes the physics of commensurate graphene bilayers more easily accessible experimentally. [1] E. J. Mele, Phys. Rev. B 81, 161405 (R) (2010). [2] S. Shallcross, S. Sharma, and O. A. Pankratov, Phys. Rev. Lett. 101, 056803 (2008).

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