Chaos and Diffusion in Twisted Bilayer Graphene

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In this talk, we analyze chaos and diffusion in a single-particle model of twisted-bilayer graphene. Our results indicate that chaos is rather easy to obtain by a non-zero twisting angle, at least in the bulk of the spectrum. We analyze Thouless energy at intermediate angles to gain a deeper understanding of the diffusive processes associated with this chaotic spectrum. This quantity shows a behaviour consistent with scattering caused by the system's borders. Our analysis reveals a pretty small dimensionless conductance, larger for the case of incommensurate structures than for commensurate ones.