

Electron-Hole Puddles in the Absence of Charged Impurities

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Abstract: It is widely believed that carrier-density inhomogeneities (“electron-hole puddles”) in single-layer graphene on a substrate like quartz are due to charged impurities located close to the graphene sheet.

In this seminar we demonstrate by using a Kohn-Sham-Dirac density-functional scheme that corrugations in a real sample are sufficient to determine electron-hole puddles on length scales that are larger than the spatial resolution of state-of-the-art scanning tunneling microscopy.