

DIRAC FERMIONS IN GRAPHITE NANOSTRUCTURES

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Discovery of Dirac fermions in graphene renewed the interest to graphite. The existence of Dirac fermions has been established in thin single crystals of graphite as well by magneto-optics [1], STM [2] and interlayer tunneling [3] experiments.

Here we report on our recent experiments on interlayer tunneling in graphite mesa-type structures in high magnetic fields up to 55 T as well as on the experiments on quantum interference of carriers in thin graphite single crystals with columnar defects containing magnetic flux (Aharonov-Bohm effect) [4]. The experiments on nanostructures of both types indicate significant contribution of Dirac fermions to the in-plane and the out-of-plane magnetotransport in graphite.

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