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Sheet Resistance and Magnetoresistance in Polycrystalline CVD Graphenes

© A.K. Fedotov[1], A.A. Kharchanka[1], U.E. Gumiennik[1,2], J.A. Fedotova[1], Ali Arash Ronassi[3], A.S. Fedotov[4,5], S.L. Prischepa[6,7], M.V. Chichkov[8], M.D. Malinkovich[8]

[1] Institute for Nuclear Problems of Belarusian State University, Belarus
[2] AGH University of Science and Technology, Poland
[3] Payaame Noor University in Borujerd, Iran
[4] Belarusian State University, Belarus
[5] University of Tyumen, Russia
[6] Belarusian State University of Informatics and Radioelectronics, Belarus
[7] National Research Nuclear University MEPhI, Russia
[8] National University of Science and Technology MISiS, Russia

E-mail: akf1942@gmail.com

Received: March 26, 2022
Revised: March 26, 2022
Accepted: March 27, 2022

Temperature and magnetic field dependencies of sheet resistance $R_{\square}(T, B)$ in polycrystalline CVD graphene, investigated in the range of $2 \leq T \leq 300$ K and magnetic fields $0 \leq B \leq 8$ T, allowed to determine carrier transport mechanisms in single-layered and twisted CVD graphene. It is shown that for $R_{\square}(T, B)$ curves for such samples are described by the interference quantum corrections to the Drude conductivity independently on type of precursor and peculiarities of graphene transfer from Cu foil onto the various substrates (glass or SiO_2). The twisted CVD graphene samples have demonstrated additional contribution of 2D hopping conductivity into the $R_{\square}(T, B)$ dependencies.

Keywords: graphene, single layer, twisted layers, CVD, carrier transport, magnetoresistance.