

Engineering the electrical properties of graphene materials

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Ivan Khrapach
December, 2012

Abstract

In this thesis the properties of graphene and its few-layers are engineered to make them highly conductive. Two different approaches were implemented to achieve this goal. One approach was to increase the concentration of charge carriers by intercalation of acceptor FeCl_3 molecules between graphene planes. This resulted in a highly conductive yet transparent material which can be useful for applications. Another approach was to increase the mobility of carriers by means of removing surface contamination in the current annealing process. Optimal annealing parameters were found and a reproducible cleaning method was suggested.

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