

The Influence of Proton Irradiation on The Physical Properties of LPE Graphene

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Graphene and other 2D materials are being extensively studied around the world due to their unique physical properties [1,2]. These materials can be used in various technological fields and environments. For example, they can be used in environments where there is a proton radiation background (Nuclear plants, space, etc.). Therefore, it is very important to understand the effect of proton irradiation on the properties of these materials.

In turn, graphene layers synthesized by liquid-phase exfoliation (LPE) exhibit interesting optical properties, especially when doped simultaneously in solution [2,3]. In our research the influence of proton irradiation on the infrared absorbance, reflectance, and transmittance of LPE graphene is discussed. The layers are irradiated using C18 cyclotron. By combining Raman and FTIR spectra, it was possible to analyze the effect of radiation on the optical properties of the layers [4]. The change in the content of chemical elements after irradiation is also discussed using the results of energy dispersive X-ray spectroscopy. The effect of proton irradiation on the electrical properties was also studied. The change of I-V characteristics after proton irradiation is discussed.

References

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