

Investigating the electrical properties of doped graphene using near-edge X-ray absorption fine structure spectroscopy

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Abstract

This project sought to explore the electronic properties of doped chemical vapor deposition (CVD) graphene. Single layer CVD graphene samples were doped with 0.5Å of gold, 1Å of silver and 1Å of titanium via thermal/e-beam evaporation. Compared to our pristine graphene sample, the titanium doped, gold doped and silver doped samples exhibited an increase in hall mobility of about 19%, a decrease of 24% and a decrease of 8% respectively. Near-edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy of the pristine graphene sample and the doped samples illustrated that there was a slight shift in the position of the π^* resonance peak in the doped samples when compared to that of the pristine graphene sample. Differences were also noticed in the interlayer states of all the samples.

References

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