

Abstract Submitted
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Study of defectivity in suspended graphene by analysis of G-phonon Raman line-widths¹ GAYATHRI RAO, JI UNG LEE, ROBERT GEER, CNSE, University at Albany, State university of New York — Exfoliated graphene supported on substrate have degraded performance due to scattering from charge impurities and impact device performance. However to understand the impact of defectivity on graphene it is essential to eliminate any substrate induced effects. This makes the study of defectivity on suspended graphene using Raman spectroscopy very attractive. The defect-induced Raman D peak gives great insight into study of defects. There is also increase in G line-widths due to increased EPC (electron phonon coupling) on defect introduction. In this work we have carried out electron beam irradiation of suspended graphene at controlled doses. Post Raman analysis on the irradiated samples indicated the evolution of D peaks. This increase in the D peak in suspended graphene is almost linear when compared to the monotonic increase in ID/IG ratio of supported graphene. The line widths of the G peak show significant variation. The results are contradictory to those on the substrate indicating large influence of substrate. Results of line-width variation of G-peak of suspended graphene along with comparison to substrate supported graphene are presented.

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