

Abstract Submitted
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Extracting optical properties of individual or few layers of graphite oxide sheets on surfaces by developing simple optical approaches¹ INHWA JUNG, RICHARD PINER, DIMITRY DIKIN, SASHA STANKOVICH, SUPINDA WATCHAROTONE, RODNEY RUOFF, Northwestern University — An optical method for extracting optical properties of individual or few layers of graphite oxide sheets is presented. The substrate consists of a dielectric layer of controlled thickness on semiconducting silicon. The intensity ratio between reflected light from the material and the substrate can be optimized through choice of the optical properties and the thickness of the dielectric layer; analysis of the reflection of an incident light beam demonstrates this, and confocal microscopy images obtained on different thickness dielectric layers verifies the analysis. By comparing the measured and predicted intensity ratios of single layers of graphite oxide the optical properties before and after thermal treatment were obtained. The use of a designed substrate in terms of the thickness and optical properties of a dielectric layer on silicon, could find use for optically characterizing exceptionally thin platelets and also thin biological materials which might otherwise not be discerned through “standard” optical microscopy.

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