

Abstract Submitted  
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**Analysis of Reflectivity Measurements**<sup>1</sup> WILLIAM KARSTENS, Saint Michael's College, D. Y. SMITH, University of Vermont and Argonne National Laboratory — Reflectivity measurements over a limited wavelength range do not uniquely determine a material's optical constants. To achieve the latter, reflectivity must be known over a sufficient range to apply phase dispersion analysis, or reflectivity at several angles of incidence must be measured in order to solve Fresnel's equations. An approximate alternative is to fit reflectivity data with a model for the optical constants that is consistent with the material's known, or at least plausible, electronic and/or phonon structure. We have explored this procedure for analysis of IR and visible reflectivity of crystalline, amorphous, and porous silicon using both theoretical and empirical models. Limitations of this procedure, especially at the extremes of the measured range will be discussed.

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