

Abstract Submitted
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Transmission Spectra for 1D Disordered Photonic Crystals DONALD PRIOUR, Youngstown State University — With a recursive technique which accounts for disorder in a rigorous fashion without a need for averaging over multiple configurations of disorder, we calculate transmission spectra (for normal and oblique incidence in the optical range) for disordered nanoscale photonic crystals comprised of layers of alternating composition (i.e. Zinc Oxide and Chromium). Our theoretical results are in accord with recent experimental data obtained for a ZnO/Cr system. For the latter, we discuss the unusually high transmitted intensity of the photonic crystals, with theoretical predictions (calculated using the bulk attenuation coefficient for Chromium) several orders of magnitude lower. Nevertheless, by using a modified and considerably reduced attenuation coefficient for the nanoscale chromium layers, we obtain excellent agreement with the experimental data.

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