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Nathan L Gibson* (gibsonn@math.oregonstate.edu). *Analysis of Methods for Dispersive Electromagnetics with Distributions of Parameters.*

Electromagnetic wave propagation in complex dispersive media is governed by the time dependent Maxwell's equations coupled to auxiliary differential equations that describe the evolution of the induced macroscopic polarization. We consider polydispersive materials represented by distributions of dielectric parameters in a polarization model. Polynomial Chaos Expansions are used to approximate the resulting random polarization ODEs with systems of deterministic ODEs, providing a computational framework amenable to standard time and spatial discretization methods. We show how stability and dispersion analyses are affected by the presence of variability. (Received February 06, 2018)