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Electromagnetic waves in disordered dielectric media: coupled-dipole model

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Abstract: An effective approach to multiple scattering of electromagnetic waves by disordered dielectric media is developed. A self-consistent energy-conserving coupled-dipole model is used. Applications to the Anderson localization of electromagnetic waves are presented. A complete set of Maxwell's equations is used to describe the propagation of waves and the vector character of the electromagnetic field is fully taken into account.