

Numerical homogenization of the Maxwell-Debye system: Semidiscrete error analysis

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In this talk we investigate time-dependent Maxwell's equations coupled with the Debye model for orientation polarization in a medium with highly oscillatory parameters. The goal is to characterize the macroscopic behavior of the solution to the resulting integro-differential system. We use analytical homogenization results to derive the effective Maxwell system with the corresponding cell problems. The Finite Element Heterogeneous Multiscale Method (FE-HMM) is applied to solve the homogenized Maxwell system and we give first insights into the semidiscrete error analysis.