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An OcTree Multigrid Method for Quasi-Static Maxwell's Equations with Highly Discontinuous Coefficients

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In this talk we describe a multigrid method for Quasi-Static Maxwell's equations with highly discontinuous coefficients. Our method is based on OcTree discretization of the system, coupled with a reformulation of the discrete system. The OcTree allows us to effectively build coarse grids that do not cross discontinuities while the reformulation effectively deals with the null space of the bf curl. We demonstrate that using this approach we are able to solve problems that cannot be solved by any other multigrid method known to us.