Imaging small polarizable scatterers using Stokes parameters

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We consider the problem of finding small scatterers by probing a homogeneous medium with electromagnetic waves and measuring only Stokes parameters or polarization data at an array. We show that an adaptation of Kirchhoff imaging to electromagnetics and phase retrieval techniques based on linearization can be used in this imaging problem. Our method assumes illuminations with point sources for which we only know the Stokes parameters in the far field.