

# Source identification in low-frequency electromagnetism

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## Abstract

We analyze a source identification problem for the steady-state Maxwell's equation

$$\beta \mathbf{E} + \nabla \times (\mu^{-1} \nabla \times \mathbf{E}) = \mathbf{J} \quad \text{in } \Omega,$$

where  $\beta$  is a time-scaled conductivity,  $\mathbf{E}$  stands for the electric field and  $\mathbf{J}$  is the unknown source term. The tangential components of the magnetic and the electric field are measured on the boundary of the Lipschitz polyhedron  $\Omega$ . We have to deal with a low-regularity of Maxwell's system for such a domain. A primal–dual approach is employed to tackle the problem.