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32816. *On a minimization problem for conductivity imaging.*

One of the newly developed hybrid methods to image the conductivity from interior knowledge of the magnitude of the current density field leads to the minimization problem  $\operatorname{argmin} \int_{\Omega} a |\nabla u| dx$ , subject to  $u = f$  on  $\partial\Omega$ . Some questions concerning existence, uniqueness and stability of the minimization problem in the space of functions of bounded variations are discussed. (Received September 18, 2009)