1056-49-1684 **M. Zuhair Nashed***, University of Central Florida, 4000 Central Florida Blvd., Orlando, FL 32816, and **Alexandru Tamasan**, University of Central Florida. *Local stability in a minimization problem for conductivity imaging.*

We consider the problem of minimization of the functional $\int_\Omega a|\nabla u|dx$ over functions of bounded variation with prescribed trace f at the boundary. The stability of the minimum value of the functional with respect to the coefficient $a \in L^2(\Omega)$ is established in the vecinity of a coefficient of the form $a = \sigma|\nabla u|$, where u is σ- harmonic with trace f at the boundary. This problem occurs in conductivity imaging when knowledge of the magnitude of the current density field inside a body is available. (Received September 22, 2009)