

Conductivity imaging from minimal interior measurements

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Abstract

I will discuss the problem of recovering an isotropic conductivity outside of some perfectly conducting or insulating inclusions from knowledge of the magnitude of one current density vector field. This problem is closely related to uniqueness of minimizers of certain weighted least gradient problems and theory of minimal surfaces. We prove that the conductivity outside of the inclusions as well as the shape and position of the inclusions are uniquely determined by the magnitude of the current generated by imposing a given boundary voltage.

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