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**Francois S Monard\*** (fmonard@ucsc.edu) and **Donsub Rim**. *Reconstruction of anisotropic conductivities from power densities in three dimensions.*

We present reconstruction algorithms of anisotropic conductivity tensors in three dimensions, from knowledge of a finite family of power density functionals. Such a problem arises in the coupled-physics imaging modality Ultrasound Modulated Electrical Impedance Tomography for instance. We improve on previously existing algorithms derived for both isotropic and anisotropic cases, and we address the well-known issue of vanishing determinants in particular. Numerical validations will be presented. (Received September 20, 2018)