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Sanwar Ahmad* (suahmad@colostate.edu), Department of Mathematics, Fort Collins, CO 80523, and **Taufiqar Khan** (khan@clermson.edu), Clemson, SC 29634. *A hybrid approach combining analytical and iterative regularization methods for Electrical Impedance Tomography*. Preliminary report.

Electrical impedance tomography (EIT) is an imaging method that has been gaining more popularity due to its ease of use and non-invasiveness. EIT can potentially be used as an alternative to traditional imaging techniques, such as computed tomography (CT) scans, to reduce the damaging effects of radiation on the tissue. In EIT, the inner distribution of resistivity, which corresponds to different resistivity properties of different tissues, is estimated from the voltage potentials measured on the boundary of the object being imaged. In this paper, we discuss a direct method for solving the EIT inverse problem using mollifier regularization. A comprehensive numerical and computational comparison for EIT is presented. Based on the comparative results, a novel hybrid method combining the mollifier and iterative method, iteratively regularized Gauss-Newton method, is proposed. (Received September 17, 2019)