Meeting: 1003, Atlanta, Georgia, SS 4A, AMS-SIAM Special Session on Theoretical and Computational Aspects of Inverse Problems, I

1003-35-243 **Kurt M. Bryan*** (kurt.bryan@rose-hulman.edu), Department of Mathematics, Rose-Hulman Institute of Technology, Terre Haute, IN 47803, and **Janine Haugh**, **Rachel Krieger**, **David McCune** and **Nic Trainor**. *Impedance Imaging of Multiple Linear Cracks.*

We will discuss a very fast, simple algorithm for locating one or more pair-wise disjoint linear cracks in a homogeneous two-dimensional electrical conductor, using one or more flux-potential boundary measurements. The method works even in the case in which the cracks are not perfectly insulating. Unlike many other methods, our approach does not require an a priori guess at the number of cracks present. We will also address the issue of what types boundary inputs yield the most stable images. (Received September 02, 2004)