1077-35-220 **Sarah Jane Hamilton*** (hamilton@math.colostate.edu), hamilton@math.colostate.edu.

Implementation of a Direct D-bar Reconstruction Algorithm for Recovering a Complex Admittivity Distribution from Electrical Impedance Tomography Data. Preliminary report.

Electrical Impedance Tomography is a fairly new, portable, relatively inexpensive, real-time imaging system that requires no ionizing radiation. Electrodes are placed at the surface of a body and low frequency and amplitude current is applied on the electrodes. The currents penetrate the body to varying depths before returning to the electrodes where the voltage value on each electrode is measured. By applying a basis of current patterns one can obtain enough information to create a picture of the complex admittivity distribution (conductivity along with permittivity) inside the domain. Recovery of this interior complex admittivity distribution from boundary measurements is a severely ill-posed inverse problem and has been the source of much research over the last 30 years. In this poster, a direct D-bar reconstruction algorithm for once differentiable admittivities is presented. Reconstructions from both simulated (Finite Element Method) and experimental data are included. (Received September 09, 2011)