

## Progress and Problems in Electrical Impedance Tomography

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**Abstract:** Electrical Impedance tomography systems apply currents to electrodes on the surface of a body and measure the resulting voltages. They make approximate images of the conductivity and permittivity inside the body from this data by solving an inverse boundary value problem, the Calderon Problem. We will describe the latest ACT5 system we have built and applications to imaging heart and lung function primarily in children with lung diseases. We also list some mathematical problems that arise because of the capabilities of the ACT5 system. Images and videos will be shown.