

Introduction to Problems in Electrical Impedance Tomography

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The main problem of Electrical Impedance Tomography is to reconstruct the electrical properties inside a body, such as the electrical conductivity, permittivity, and magnetic permittivity, from measurements made outside the body. It will be explained how this is an inverse boundary value problem for Maxwell's equations. It will also be explained how EIT systems have been designed to solve this problem at low frequencies where this is referred to as the Calderon Problem. Examples of such systems along with images and videos of their use in monitoring heart and lung function will be shown. This talk will be given partly as an introduction to the other talks about EIT.