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## ESTIMATING RESOLUTION OF EIT SYSTEM BY SOLVING FORWARD PROBLEM USING EIDORS

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## Abstract

Electrical Impedance Tomography (EIT) is being explored by scientists and students for various applications. Application of EIT involves detection of an object with particular shape and size having different conductivity as compared to the uniform background conductivity. Spatial resolution and resolution for relative conductivity are two important parameters which decide the usefulness of EIT in a given application. Estimate of these parameters for a proposed EIT system configuration, helps in designing and tuning the system characteristics for a particular application. In this paper we have solved forward problem of EIT using EIDORS (Electrical Impedance Diffused Optical Reconstruction Software) to estimate EIT system resolution. Numerical experiments were carried out to identify appropriate grid size for solving the forward problem. The forward problem was solved for various sizes and conductivity values of the object to be detected, with respect to the background. The resulting surface potentials were plotted and analyzed to decide the smallest detectable change in the dimension and the conductivity of the object. The approach and results discussed here will be useful in designing EIT system for a given application.

Keywords: EIT, Forward problem, EIDORS, Resolution.

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