BOUNDS ON THE SIZE OF AN INCLUSION USING THE TRANSLATION METHOD FOR TWO-DIMENSIONAL COMPLEX CONDUCTIVITY

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ABSTRACT

The size estimation problem in electrical impedance tomography is considered when the conductivity is a complex number and the body is two-dimensional. Upper and lower bounds on the volume fraction of the unknown inclusion embedded in the body are derived in terms of two pairs of voltage and current data measured on the boundary of the body. These bounds are derived using the translation method. We also provide numerical examples to show that these bounds are quite tight and stable under measurement noise.

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