

# Research Highlights

## Article

Doosung Choi, Johan Helsing, Sangwoo Kang, and Mikyoung Lim  
Inverse Problem for a Planar Conductivity Inclusion,  
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The problem of determining electrical conductivity throughout a domain from field measurements is of great interest which goes back many years. Despite the theoretical and numerical results achieved, developing analytic inversion formulas is challenging because of the consequential nature of the nonlinearity and complexity of the inverse problem. We overcome this difficulty by introducing the geometric series solution method for the conductivity transmission problem and establishing matrix factorization formulas for the exterior measurements. The primary outcome of recovering a planar conductivity inclusion is an inversion formula in terms of the generalized polarization tensors for conformal mapping coefficients associated with the inclusion.

## References

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