

**Inverse Problem with the Boundary Distance Functions on Finsler Manifolds in  
Anisotropic Elasticity**

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The speaker and his collaborators consider the collection of all boundary distance functions of a smooth compact Finsler manifold with smooth boundary as the data. They show that these determine its topological and differential structures up to isometry. In addition, they present a construction of a fiberwise open subset of the tangent bundle and show that the collection of all boundary distance functions determine the Finsler function in this set but not in the exterior of this set unless the Finsler function is fiberwise analytic. This function is fiberwise analytic when it arises from linear (anisotropic) elasticity. They then briefly present the generalized Dix inverse problem on a Finsler manifold from seismology using certain sphere data in a given open subset of the manifold as the data, and discuss its recovery in the neighborhood of any geodesic through the open set.

This is a joint research with Joonas Ilmavirta, Matti Lassas and Teemu Saksala.