UNIQUENESS OF THE TRAVEL TIME
FOR ANY DISJOINT MODE
IN ANISOTROPIC ELASTIC MEDIA

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ABSTRACT. We study general anisotropic elastic media that have a disjoint wave mode, that is, elastic media with the property that one sheet of the slowness surface never intersects the others. We extend results from microlocal analysis to describe the propagation of singularities for the disjoint mode. Applying these results to the study of the dynamic inverse problem, we show that displacement-traction surface measurements uniquely determine the travel time between boundary points for the disjoint mode. We conclude that two of the five elastic parameters describing transversely isotropic elastodynamics with ellipsoidal slowness surfaces and a disjoint mode are partially determined by surface measurements. (Joint with Anna Mazzucato.)

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