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Christina Knox* (knox@math.ucr.edu) and **Amir Moradifam**. *Determining both the source of a wave and its speed in a medium from boundary measurements.*

In this talk we will discuss the inverse problem of determining both the source of a wave and its speed inside a medium from measurements of the solution of the wave equation on the boundary. This problem arises in photoacoustic and thermoacoustic tomography. We will present a brief overview of previous uniqueness results and then present our two original uniqueness results. If the reciprocal of the wave speed squared is harmonic in a simply connected region and identically one elsewhere then a non-trapping wave speed can be uniquely determined from the solution of the wave equation on the boundary of domain without knowledge of the source. If the wave speed is known and only assumed to be bounded, then, under a natural admissibility assumption, the source of the wave can be uniquely determined from boundary measurements. (Received September 24, 2018)