1108-78-203   **John C Schotland*** (`schotland@umich.edu`), Department of Mathematics, University of Michigan, Ann Arbor, MI 48109. *Inverse transport and acousto-optic imaging.*

A method to reconstruct the optical properties of a highly-scattering medium from acousto-optic measurements is proposed. The method is based on the solution to an inverse problem for the radiative transport equation with internal data. A stability estimate and a direct reconstruction procedure are described. (Received January 13, 2015)