1023-35-858 **David V Finch*** (`finch@math.oregonstate.edu`), Department of Mathematics, Oregon State University, Corvallis, OR 97331-4608, **Rakesh**, Department of Mathematical Sciences, University of Delaware, Newark, DE 19716, and **Markus Haltmeier**, Department of Computer Science, U. Innsbruck, A-6020 Innsbruck, Austria. *Integral geometric problems arising in thermoacoustic tomography.*

The measured data in the idealized model of thermoacoustic tomography is the trace on (a subset of) the boundary of a domain over some time interval of the solution of the wave equation with initial data supported in the domain. The inverse problem is to recover the initial data. A closely related problem is the recovery of the function from its spherical means for centers on (a subset of) the boundary. When the domain is a ball, there has been significant progress in the last year on range characterizations and oninversion formulas. This talk will report on some of these developments. (Received September 22, 2006)