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19716. *Uniqueness for a hyperbolic inverse problem with angular control of the coefficients.*

Let  $u(x,t)$  be the solution of the initial value problem  $u_{tt} - \Delta_x u + q(x)u = \delta(x,t)$  in  $\mathbb{R}^3 \times [0, T]$  with zero initial data. Let  $S$  be the unit sphere in  $\mathbb{R}^3$  and  $C = S \times [0, T]$  the space time cylinder with axis along the  $t$  axis. We show that the map  $F : q \mapsto (u, u_r)|_C$  is injective if  $T$  is large enough and  $q$  is restricted to a class of potentials whose angular derivatives are dominated by their radial derivatives. Additional results may also be available based on work currently in progress. This is based on work done with Paul Sacks. (Received September 22, 2011)