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**Eric L Grinberg\*** ([grinberg@unh.edu](mailto:grinberg@unh.edu)), Department of Mathematics & Statistics, Kingsbury Hall, University of New Hampshire, Durham, NH 03824. *The Radon Transform on Short Geodesics and Maximally Curved Spheres*. Preliminary report.

The X-ray transform  $R$  on a Riemannian manifold  $M$  integrates functions along geodesics. Much is known about this transform. With sufficient regularity assumptions on the ambient space  $M$ , there are results on injectivity, microlocal injectivity, or injectivity modulo a natural kernel. We consider variants of these transforms where the class of x-rays (geodesics) is restricted, e.g. to short geodesics, or when the x-rays are thickened, e.g., to maximally curved spheres. For  $M$  a symmetric space of compact type, a structure theorem of S.Helgason guarantees that there is an ample supply of such thickened short geodesics. In these contexts there are injectivity theorems for short and thickened Radon transforms. (Received February 05, 2008)