1023-44-350 **Paul Goodey** (pgoodey@math.ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019-0315, and **Ralph Howard*** (howard@math.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208. *An injectivity theorem for Radon transforms restricted to isotropic functions.* Preliminary report.

Let G/K and G/H be compact symmetric spaces (or more generally Gel'fand pairs) and let $L^2(G/K)^H$ be the elements of $L^2(G/K)$ that are invariant under H.

Theorem. *If $R: L^2(G/K) \to L^2(G/H)$ is a bounded G-invariant map such that the image of R is dense in $L^2(G/H)$, then the restriction of R to $L^2(G/K)^H$ is injective.*

An example, motivated by results of Firey on the relation of convex bodies with constant k-girth to those with constant k-brightness, if $\mathbf{Gr}_k(\mathbf{R}^n)$ is the Grassmann of k-dimensional linear subspaces of $\mathbf{R}^n$, and $k < j < n-k$, then the usual Radon transform $R: L^2(\mathbf{Gr}_j(\mathbf{R}^n)) \to L^2(\mathbf{Gr}_k(\mathbf{R}^n))$ has infinite dimensional kernel, however the restriction of R to $L^2(\mathbf{Gr}_j(\mathbf{R}^n))^{SO(k)\times SO(n-k)}$ is injective. (Received September 08, 2006)