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Job J. Kuit* (j.j.kuit@gmail.com), Dep. of Mathematics, University of Copenhagen, Universitetsparken 5, DK-2100 Copenhagen, Denmark. *Radon transformation on reductive symmetric spaces: support theorems.*

Let G be a semisimple Lie group and let $G = KAN$ be an Iwasawa decomposition of G . Let X be the Riemannian symmetric space G/K . A horosphere in X is an orbit in X of a subgroup of G that is conjugate to N . For a compactly supported smooth function ϕ on X , let $\mathcal{R}\phi$ be the function on the set of horospheres, that for a horosphere ξ is given by the integral of ϕ over ξ . The Radon transform \mathcal{R} thus obtained is called the horospherical transform. In 1973 Helgason proved the following support theorem. Let V be a closed ball in X . If $\mathcal{R}\phi(\xi) = 0$ for every horosphere ξ such that $\xi \cap V = \emptyset$, then $\phi(x) = 0$ for $x \notin V$.

The notion of a horospherical transform has a generalization to the context of reductive (pseudo-Riemannian) symmetric spaces. We present a support theorem for a class of Radon transforms, including the horospherical transforms, on a reductive symmetric space. Our theorem generalizes the theorem by Helgason. (Received September 02, 2011)