Mathematics > Differential Geometry

Range description for a spherical mean transform on spaces of constant curvatures

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We describe the range of a restricted spherical mean transform, which sends a function supported inside a closed ball in a hyperbolic space to its mean values on the geodesics spheres centered at the boundary of the ball. The description resembles that of the same transform on the Euclidean spaces obtained by Mark Agranovsky, David Finch, and Peter Kuchment [Inverse Problems and Imaging, 3(3):373--382, 2009] and Mark Agranovsky and Linh V. Nguyen [J. Anal. Math., 112:351--367, 2010].

We also derive a similar characterization for the corresponding transform on the two dimensional spherical space.

Comments:	In the second version, we corrected some minor mistakes in the proof of Theorem 2.1. We added the result for the two dimensional spherical space. We also changed the tittle to reflect the new content of the paper
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