

1067-44-534

Leonid A Kunyansky* (leonk@math.arizona.edu), Department of Mathematics, University of Arizona, 617 N Santa Rita Ave., Tucson, AZ 85721. *Reconstruction of a function from its spherical (circular) means with the centers lying on the surface of certain polygons and polyhedra.*

We present explicit filtration/backprojection-type formulae for the inversion of the spherical (circular) mean transform with the centers lying on the boundary of some polyhedra (or polygons, in 2D). The formulae are derived using the double layer potentials for the wave equation, for the domains with certain symmetries. The formulae are valid for a rectangle and certain triangles in 2D, and for a cuboid, certain right prisms and a certain pyramid in 3D. All the present inversion formulae yield exact reconstruction within the domain surrounded by the acquisition surface even in the presence of exterior sources. (Received September 08, 2010)