

1030-42-64

Mark A PINSKY* (pinsky@math.northwestern.edu), Mathematics Department,
Northwestern University, Evanston, IL 60208-2730. *Pointwise Fourier Inversion.*

The spherical partial sums of the Fourier integral of the indicator function of a ball in three dimensions are divergent at the center of the ball but convergent elsewhere to the desired indicator function. This prototype example (coined the "Pinsky phenomenon" by J. P. Kahane, CRAS 1995) can be suitably generalized to Fourier integral expansions in higher dimensions, both on Euclidean space and other non-compact rank-one symmetric spaces. We also discuss eigenfunction expansions on a geodesic ball in a rank-one symmetric space, where the boundary conditions must be considered. We will also present some results on the asymptotic behavior of the Fejer approximation in one dimension, inspired by work of Bump, Diaconis and J.B. Keller. (Received July 13, 2007)