

October 16, 2013: Koichi Kaizuka (University of Tsukuba), *A characterization of the L^2 -range of the Poisson transform on symmetric spaces of noncompact type.*

Characterizations of the joint eigenspaces of invariant differential operators have been one of the central problems in harmonic analysis on symmetric spaces. In 1970 Helgason conjectured that any joint eigenfunction on symmetric spaces of noncompact type is expressed as the image of the Poisson transform of an analytic functional on the boundary, and this conjecture was proved by six Japanese mathematicians in 1978.

In 1989, from the point of view of spectral theory, Strichartz formulated a conjecture concerning a different image characterization of the Poisson transform of the L^2 -space on the boundary. Except for the rank one case, the Strichartz conjecture had remain unsolved up to the present moment.

In this talk, we employ techniques in scattering theory to present a positive answer to the Strichartz conjecture in the general case. By virtue of the Fourier restriction estimate for the Helgason Fourier transform and the scattering formula for the Poisson transform, we give global estimates for joint eigenfunctions in terms of the Agmon-Hörmander type norms.