1067-22-909   **Gestur Olafsson*** (`olafsson@math.lsu.edu`), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803, and **Angela Pasquale**. *Ramanujan's master theorem for symmetric spaces.*

Ramanujan's master theorem from 1913 relates the Fourier transform of a function f on the torus with it's Fourier transform on the group of positive reals

$$\int_0^\infty x^{-s-1} \left(\sum_{k=0}^\infty (-1)^k a(k) x^k \right) dx = -\frac{\pi}{\sin \pi s} a(s) \,.$$

In the work of Hardy and Ramanujan, this relation turned out to be quite useful in the theory of hypergeometric functions. Hence the Ramanujan *master theorem*. In 1996 this relation was generalized to symmetric spaces of rank one by W. Bertram and by H. Ding, K. Gross, and D. Richards to symmetric cones. In 1997 H. Ding extended it to Hermitian symmetric spaces. In this talk we present our joint work with A. Pasquale on the Ramanujan master theorem for symmetric spaces and generalizations. The duality between the torus and $\mathbb{R}^+$ is replaced by the duality between symmetric spaces of the compact type U/K and of noncompact type G/K. The sum on the left hand side is the Fourier expansion of f on a maximal torus in U/K and the right hand side is the spherical Fourier transform of f on G/K. (Received September 16, 2010)

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