A CHARACTERISATION OF THE FOURIER TRANSFORM ON THE HEISENBERG GROUP

R. LAKSHMI LAVANYA¹ * AND S. THANGAVELU²

Communicated by O. Christensen

Abstract. The aim of this paper is to show that any continuous \( \ast \)-homomorphism of \( L^1(\mathbb{C}^n) \) (with twisted convolution as multiplication) into \( \mathcal{B}(L^2(\mathbb{R}^n)) \) is essentially a Weyl transform. From this we deduce a similar characterisation for the group Fourier transform on the Heisenberg group, in terms of convolution.

¹ Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai-600 005, India.
E-mail address: rlakshmilavanya@gmail.com

² Department of Mathematics, Indian Institute of Science, Bangalore-560 012, India.
E-mail address: veluma@math.iisc.ernet.in

Date: Received: 2 November 2011; Accepted: 6 February 2012.
* Corresponding author.

2010 Mathematics Subject Classification. Primary 46K05; Secondary 42A85, 43A32.
Key words and phrases. Heisenberg group, Weyl transform, Heisenberg group Fourier transform, Hermite functions.