

SOME MULTIVARIATE INFINITELY DIVISIBLE DISTRIBUTIONS AND
THEIR PROJECTIONS

Makoto Maejima
Kenjiro Suzuki
Yozo Tamura

Abstract: Recently K. Sato constructed an infinitely divisible probability distribution μ on \mathbf{R}^d such that μ is not selfdecomposable but every projection of μ to a lower dimensional space is selfdecomposable. Let $L_m(\mathbf{R}^d)$, $1 \leq m < \infty$, be the Urbanik-Sato type nested subclasses of the class $L_0(\mathbf{R}^d)$ of all selfdecomposable distributions on \mathbf{R}^d . In this paper, for each $1 \leq m < \infty$, a probability distribution μ with the following properties is constructed: μ belongs to $L_{m-1}(\mathbf{R}^d) \cap (L_m(\mathbf{R}^d))^c$, but every projection of μ to a lower k -dimensional space belongs to $L_m(\mathbf{R}^k)$. It is also shown that Sato's example is not only "non-selfdecomposable" but also "non-semi-selfdecomposable".

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