

THE INFINITE DIVISIBILITY AND ORTHOGONAL POLYNOMIALS  
WITH A CONSTANT RECURSION FORMULA IN FREE PROBABILITY  
THEORY

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*Abstract:* We calculate Voiculescu's  $R$ -transform of the compactly supported probability measure on  $R$  induced from the orthogonal polynomials with a constant recursion formula, and investigate its infinite divisibility with respect to the additive free convolution. In the case of infinite divisibility, we give the Lévy-Hinčin measure explicitly for the integral representation of the  $R$ -transform of the free analogue of the Lévy-Hinčin formula.

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