

1125-VN-1882

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Scaling of Spectra of Cantor-Type Measures and Some Number Theoretic Considerations.

We present some relations between number theory and spectral measures related to the harmonic analysis of a Cantor set. Specifically, we discuss ways to determine when an odd natural number m generates a complete or incomplete Fourier basis for a Cantor-type measure with scale g . The analytical question is turned into a problem about the dynamics of two maps on the set of integers. We find ways to determine if a number generates a complete Fourier basis in terms of its prime decomposition, or in terms of its base g expansion (Received September 19, 2016)