ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

8. Analysis

1991 MS Classification: Primary 46L60, 47D25, 42A16, 43A65; Secondary 46L45, 42A65, 41A15

Jorgensen, Palle E. T., The University of Iowa

Ruelle operators: Functions which are harmonic with respect to a transfer operator

Let $N \in \mathbb{N}$, $N \geq 2$, be given. Motivated by wavelet analysis, we consider a class of normal representations of the C^*-algebra $\mathfrak{A}_N$ on two unitary generators U, V subject to the relation

$$UVU^{-1} = V^N.$$

The representations are in one-to-one correspondence with solutions $h \in L^1(\mathbb{T})$, $h \geq 0$, to $R(h) = h$ where R is a certain transfer operator (positivity-preserving) which was studied previously by D. Ruelle. The representations of $\mathfrak{A}_N$ may also be viewed as representations of a certain (discrete) N-adic $ax + b$ group which was considered recently by J. -B. Bost and A. Connes.