ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

8. Analysis

1991 MS Classification: 46, 47

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Cocycle conjugacy classes of Powers' semiflow of shifts

Let $\mathcal{A}(h)$ be the algebra of the canonical anticommutation relations over the separable Hilbert space h and let ω_ν be a quasifree state on $\mathcal{A}(h)$ with defining twopoint function $\omega_\nu(a^*(f)a(g)) = \nu(g,f),\ g,f \in h,\ 0 < \nu \leq 1/2$. The GNS representation π_ν associated with ω_ν generates the hyperfinite factor $\mathcal{M}_\nu = \pi_\nu(\mathcal{A}(h))''$ of type II_1 in the case of $\nu = 1/2$ and of type III_λ otherwise. Every C_0-semigroup of isometries V in h generates an E_0-semigroup $B_\nu(V)$ on $\mathcal{M}_\nu$. In case V consists of completely nonunitary isometries, $B_\nu(V)$ is Powers' semiflow of shifts.

Theorem. Given a C_0-semigroup of isometries V with uniformly continuous unitary part there is a C_0-semigroup of completely nonunitary isometries S such that the E_0-semigroup $B_\nu(V)$ is cocycle conjugate to Powers' semiflow of shifts $B_\nu(S)$.

Ref. G. Amosov, On cocycle conjugacy classes of quasifree K-systems, In: "Some probl. of fund. and appl. math. ", Moscow Inst. Phys. and Tech., 1997.