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Noncommutative geometry and Kronecker flow

We discuss a class of spectral triples over irrational rotation algebras going back to early work of Connes and more recent work of Lesch and Moscovici. We employ a slightly different construction and produce (new) examples of topologically nontrivial spectral triples over $C(\mathbb{T}^2) \rtimes \Lambda$ for Λ the (dense) subgroup of R generated by the integers and the slope θ of a Kronecker flow on $\mathbb{T}^2$. These triples have the meromorphic extension property if θ satisfies a Diophantine condition. We discuss applications to the KK-theory of A_θ and generalizations in progress to lattice pairs in $\mathbb{R}^n$.