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Revisiting the differential topology of higher-dimensional noncommutative tori

The earliest results in noncommutative (NC) differential geometry à la Connes concern the differential topology of higher-dimensional NC tori. In this talk, I'll sketch how these results interface with recent progress in NC differential and Riemannian geometry. In particular, I'll sketch how Elliott's calculation of the diffeomorphism group of a Diophantine-irrational NC 2-torus generalizes to higher dimensions and how Rieffel–Schwarz and Li's classification of higher-dimensional NC tori up to complete Morita equivalence can be refined to classify NC Hermitian line bundles with unitary connection on totally irrational higher-dimensional NC tori up to gauge equivalence. This is partly based on joint work with T. Venkata Karthik.