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Logarithmic Sobolev Inequalities in Noncommutative Spaces

Unlike the classical Sobolev inequality, Gross' logarithmic Sobolev inequality is dimension independent. As such it plays an important role in analysis and probability theory on infinite dimensional spaces. The noncommutative analogue of a log Sobolev inequality for C^* -algebras seems to be an exceedingly difficult problem. In this talk I shall report on ongoing work and progress for noncommutative tori (joint work with S. Sadeghi).