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Dixmier trace formulas and negative eigenvalues of Schrödinger operators on noncommutative tori.

This talk has two main results. The first result is an extension of Connes' integration formula to noncommutative tori equipped with general Riemannian metrics. The second main result is a version for noncommutative tori of the Cwikel-Lieb-Rozenblum inequality for negative eigenvalues of Schrödinger operators on noncommutative tori. This leads to conjecture a semiclassical Weyl's law for noncommutative tori. This shows that we can do Riemannian geometry in a quantum setting. Both results are consequences of a new version of Cwikel estimates for weak Schatten classes. This is joint work with Edward McDonald (UNSW-Sydney, Australia).