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Pseudo-differential calculus for the deformation quantization of Hopf algebra

Connes' definition of scalar curvature for a spectral triple using the heat kernel formalism is quite natural yet general. Besides the computational complexity, an important prescription is to find a suitable pseudo-differential calculus for a spectral triple to approximate the expression $(\Delta - 1)^{-1}$. In general, this is a quite difficult task but in some cases, as computed in the case of noncommutative torus, it can be achieved. I will discuss our development of pseudo-differential calculus on the deformation quantization of compact Lie groups. This work is in progress with a Ph.D. student Carlos Rodriguez.