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Quantization on supermanifolds and an analytic proof of index theorems

Abstract

I will speak about two related subjects: an analytic proof of the index theorem for the Dirac operator with coefficients in a vector bundle, and a quantization of forms on cotangent bundle providing a very straightforward proof of the Gauss-Bonnet-Chern theorem. The key ideas for both cases are: complete symbol calculus on Riemannian manifolds and some appropriate "super" quantization.