Chern classes of infinite dimensional vector bundles

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Abstract

Associated to a family of Dirac operators are an infinite dimensional superbundle of spinors and its determinant line bundle. In finite dimensions, the curvature of the Bismut-Freed connection on the determinant line bundle would be given by the first Chern form of the superbundle. In infinite dimensions, this Chern form can be defined by zeta function regularization, but the finite dimensional equality remains valid only after the addition of a Wodzicki residue.