Dirac Structures: \((V,E)\)

Def A Dirac structure on a vector bundle \(V \to M\) is a lagrangian subbundle \(E = V \oplus V^*\) relative to the obvious inner product.

Examples \((V, V), (V, V^*), (V, GV)\) \(\forall E \in \Gamma(N^*V^*)\)

\(w: V \to V^*\) s.t. \(w(x)(y) = -w(y)(x)\)

Claim \(\{(x, w(x))\}\) is a Dirac structure. [obvious]

In diagrams: \(w: V \to E: \{(V, V^*)\}\)

Def A morphism of Dirac structures

\((\Theta)w): (V, E) \to (V', E')\)

s.t. \(\Theta\) is a vector bundle map \(V \to V'\)

\(w\) is in \(\Gamma(N^*V^*)\)

s.t. \(\ldots\) 2:20

Dixmier-Douady bundles ("gerbes")

Def A DO-bundle \(A \to M\) is a bundle of \(\gamma\)-algebras with typical fiber

\(K(\ff) = \frac{\text{Pin}(\ff)}{\text{O}(\ff)}\) ("connectors")

Example If \(V \to M\) is an even rank \(v.b.)\)

\(Cl(V) \to M\) is a DO bundle. 2:30