11. Determinant bundle

$$\begin{array}{ccc} G^{-\infty}_{\mathrm{Iso}}(\mathcal{H}) & \longrightarrow & G^{0}_{\mathrm{Iso}}(\mathcal{H}) \\ \Big\downarrow \det & & \vdots\ ? \\ \mathbb{C}^* & & \mathbb{C}^* \end{array}$$

Does not extend.

Try: $G^{0}_{\mathrm{Iso}}(\mathcal{H}) \times \mathbb{C}$ — order $0 \quad -\infty$

Should certainly have $\det(AB) = \det A \cdot \det B$

$$(A, z) \sim (A', z')$$

$$\Leftrightarrow \quad A' = AB\,, \quad z' = \det(B)\cdot z$$

$$A, A' \in G^{0}_{(2)},\ B \in \Psi^{-\infty}_{\mathrm{Iso}}\,.$$

$$\mathcal{L}_{[A]} = \left(A \cdot G^{-\infty}_{\mathrm{Iso}}(\mathcal{H}) \times \mathbb{C}\right)/\sim$$

complex line