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Twisted Atiyah–Bott–Shapiro Maps and SPTs

The Atiyah–Bott–Shapiro orientation $MTSpin \rightarrow KO$ produces a KO -theory Thom class from a spin manifold. We develop a twisted version of this map for $\text{spin}(\ell, k)$ manifolds: manifolds with a spin structure on their tangent bundle augmented by $\ell + k$ -many line bundles. We compute a dual version of this map, which admits a physical interpretation in terms of fermionic symmetry protected topological phases. This talk is based on joint work with Arun Debray and Luuk Stehouwer.

Arun Debray, Cameron Krulewski, Luuk Stehouwer. "Unraveling the Bott spiral." arXiv:2605.00316