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Supersymmetric WZW models and twisted K-theory of SO(3)

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Abstract

We present an encompassing treatment of D-brane charges in supersymmetric SO(3) Wess–Zumino–Witten (WZW) models. There are two distinct supersymmetric Conformal field theories (CFTs) at each even level: the standard bosonic SO(3) modular invariant tensored with free fermions, as well as a novel twisted model. We calculate the relevant twisted k-theories and find complete agreement with the CFT analysis of D-brane charges. The K-theoretical computation in particular elucidates some important aspects of $\mathcal{N} = 1$ supersymmetric WZW models on non-simply connected Lie groups.

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