

Topology change and selection rules for $\text{Spin}(1, n)_0$ -Lorentzian cobordisms

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A Lorentzian cobordism is a 'pair' $((W; M_1, M_2), g)$ that consists of a cobordism $(W; M_1, M_2)$ and a nonsingular Lorentzian metric (W, g) such that the boundary $\partial W = M_1 \sqcup M_2$ is spacelike. Back in '92, Gibbons-Hawking obtained sufficient and necessary conditions for an $SL(2, C)$ -Lorentzian cobordism between closed 3-manifolds to exist. In this talk, we discuss the extension of their result to arbitrary dimensions as well as computations of the corresponding cobordism groups/rings. The talk is intended for an audience mainly composed of grad students in both physics and math. This is joint work with Gleb Smirnov (ETH).