

Fully local Chern–Simons theories

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It has long been a challenge to construct fully local extensions of 3-dimensional topological Chern–Simons theories. The problem appears in various forms: "Extend Chern–Simons down to points" or "What does Chern–Simons theory attach to a point?". In recent work with Claudia Scheimbauer and Constantin Teleman we apply the cobordism hypothesis to realize fully local extensions of Reshetikhin–Turaev theories, which include Chern–Simons theories.

We also explore different tangential structures, in particular p_1 -structures. I will also discuss their role from a physics point of view, as explained in a recent paper with Teleman.