

# QFT's for Non-Semisimple TQFT's

*Wednesday, 2 June 2021 19:00 (1h 15m)*

Thirty years ago, work of Witten and Reshetikhin-Turaev activated the study of quantum invariants of links and three-manifolds. A cornerstone of subsequent developments, leading up to our current knot-homology conference, was a three-pronged approach involving 1) quantum field theory (Chern-Simons); 2) rational VOA's (WZW); and 3) semisimple representation theory of quantum groups. The second and third perspectives have since been extended, to logarithmic VOA's and related non-semisimple quantum-group categories. I will propose a family of 3d quantum field theories that similarly extend the first perspective to a non-semisimple (and more so, derived) regime. They support boundary VOA's whose module categories equivalent to modules for small quantum groups at even roots of unity.

This is joint work with T. Creutzig, N. Garner, and N. Geer, and also related to recent work of Gukov-Hsin-Nakajima-Park-Pei-Sopenko.

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