



Contribution ID: 10

Type: **not specified**

Catherine Meusburger: Turaev-Viro-Barrett-Westbury state sums with defects

Wednesday, 30 August 2023 10:15 (1 hour)

We define a Turaev-Viro-Barrett-Westbury state sum model of triangulated 3-manifolds with surface defects (oriented 2d surfaces), line defects and point defects (graphs on the defect surfaces). Surface defects are labeled with bimodule categories over spherical fusion categories with bimodule traces, line and point defects with bimodule functors and bimodule natural transformations. The state sum uses generalised 6j symbols that encode the coherence isomorphisms of the defect data. We prove the triangulation independence of the state sum and show that it can be computed with polygon diagrams that satisfy the cutting and gluing identities for polygon presentations of oriented surfaces. State sums detect the genus of a defect surface and are sensitive to its embedding. Defect lines on defect surfaces with trivial defect data define ribbon invariants for the centre of the underlying spherical fusion category. Reference: C. Meusburger, State sum models with defects based on spherical fusion categories, *Adv. Math.* 429 (2023), DOI:10.1016/j.aim.2023.109177