

Turaev-Viro state sum models with defects

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1. Abstract

Turaev-Viro-Barrett-Westbury state sum models define topological quantum field theories and are closely related to models from topological quantum computing, Kitaev's quantum double models and Levin-Wen models. We explain how defects of codimension 1,2,3 are included in Turaev-Viro-Barrett-Westbury state sum models. We show that the resulting state sums are independent of the choice of the triangulation and comment on the properties of the models with defects. We discuss the applications to quantum double and Levin-Wen models.