

Turaev-Viro invariant for all orientable Seifert manifolds

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Abstract

Turaev-Viro invariant is a topological invariant for closed 3-manifolds. In this talk, we introduce the definition of TV-invariant by using special spines of closed 3-manifolds, and give a formula of TV-invariant for all orientable Seifert manifolds. Our formula is based on a new construction of special spines of all orientable Seifert manifolds and the "gluing lemma" of topological quantum field theory.

By using this formula, we get sufficient conditions that TV-invariant of Seifert manifolds coincides and make a computer program calculating TV-invariant of orientable Seifert manifolds. The method of constructing our formula is applicable to the "state sum" type invariant, for example Turaev-Viro-Oceanu invariant or Dijkgraaf-Witten invariant.