Jones, Vaughan F. R.

The annular structure of subfactors. (English) Zbl 1019.46036

Ghys, Étienne (ed.) et al., Essays on geometry and related topics. Mémoires dédiés à André Haefliger. Vol. 2. Genève: L'Enseignement Mathématique. Monogr. Enseign. Math. 38, 401-463 (2001).

In the article under review, the author uses the technique of decomposition of any planar algebra which contains the Temperley-Lieb planar algebra.

The author presents two main applications of his technique. The first is a positivity result for the Poincaré series of a planar algebra, obtained by summing the generating functions of the TL-modules contained in a planar algebra. There are certain restrictions on the principal graph of a subfactor of index close to 4.

The second application is to give a uniform method of the ADE series of subfactors of index less than 4. The author gave two versions of the proof, the first of which interprets the vanishing of a certain determinant as being the flatness of a certain connection in the Ocneanu language, or the computation of the relative commutants for a certain commuting square. The second proof is a purely planar algebraic proof which proceeds by giving a system of "skein" relations on a generator of a planar algebra which allow one to calculate the partition function of any closed tangle.

For the entire collection see [Zbl 0988.00115].

Reviewer: Andreiy Kondrat'yev (Red Level)

MSC:

46L37 Subfactors and their classification

Keywords:

planar algebra; annular structure; subfactor

Full Text: arXiv