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Twisted conformal blocks and their dimension

The dimension of conformal blocks attached to algebraic curves can be computed by Verlinde formula. This was proved based on the works of Tsuchiya-Ueno-Yamada, Faltings, Teleman, etc. The theory of twisted conformal blocks was recently developed by Damiolini in special case, and by Hong-Kumar in full generality. A Verlinde type formula for the dimension of twisted conformal blocks (with some restriction) has recently been proved by Deshpande-Mukhopdhyay using the machinery of crossed modular categories.

Following the original ideas of proving Verlinde formula, I will present an approach towards the Verlinde formula for twisted conformal blocks. More precisely, I will explain some reduction theorems, and also a partial result of vanishing theorem of Lie algebra cohomology, which was originally proved by Teleman in the non-twisted setting. This talk will be based on an ongoing joint work with Shrawan Kumar.