Weyl modules for twisted toroidal Lie algebras

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Abstract

In this talk, we first define Weyl modules for loop algebras. We then introduce twisted toroidal Lie algebras (TTLAs), a generalization of twisted affine Lie algebras; thereafter, we extend the notion of Weyl modules to TTLAs. We show that the level-one global Weyl modules for TTLAs can be realized as the tensor product of level-one representations of the twisted affine Lie algebras and certain lattice vertex algebras. As a byproduct, we obtain the graded characters of level-one local Weyl modules for TTLAs.