JUN MORITA, University of Tsukuba, Tsukuba, 305-8571, Japan
Moody's conjecture (II), from derivations to automorphisms

Let g be a Kac–Moody algebra over a field of characteristic 0 defined by a generalized Cartan matrix A, and let b^+ be the standard Borel subalgebra with its nilradical $n^+ = [b^+, b^+]$. Then, we can determine $\mathrm{Der}(n^+)$, which gives an answer to the so-called Moody's conjecture posed about 30 years ago. Using the structure of $\mathrm{Der}(n^+)$, we can also determine $\mathrm{Aut}(n^+)$ if A is symmetrizable. The main idea is to study $\mathrm{ad}(b^+) \subset \mathrm{Der}(n^+)$ and $\mathrm{Aut}\big(\mathrm{ad}(b^+)\big)$, which implies that $\mathrm{Aut}(n^+) = \mathrm{Aut}(A)B^+$ if A is symmetrizable, indecomposable and of infinite type, where $\mathrm{Aut}(A)$ is the Dynkin diagram automorphism group, and where B^+ is the standard Borel subgroup of the corresponding adjoint Kac–Moody group.

This talk is a part of the joint work with Kaiming Zhao, which is referred to in our paper entitled "Automorphisms and derivations of Borel subalgebras and their nilradicals in Kac–Moody algebras".