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Moody's Conjecture

Let g be a Kac–Moody algebra over a field of characteristic 0 defined by a indecomposable generalized Cartan matrix A, and let b^+ be a standard Borel subalgebra with its nilradical $n^+ = [b^+, b^+]$.

Derivations $\mathrm{Der}(b^+)$ and $\mathrm{Der}(n^+)$ in case of finite type were given in B. Kostant (Ann. of Math. **74**(1961), 329–387) and G. F. Leger and E. M. Luks (Trans. Amer. Math. Soc. **195**(1974), 305–316). In 1980, R. V. Moody (Proc. London Math. Soc. **40**(1980), 430–442) conjectured that $\mathrm{Der}(n^+)$ is equal to $\mathrm{ad}(b^+)|_{n^+}$ when A is not of finite type. When A is of affine type, $\mathrm{Der}(n^+)$ was obtained in A. Fialowski (Adv. Math. **97**(1993), 267–277). I will talk about Moody's Conjecture for the remaining case, A is of indefinite type.

This talk is part of the joint work with Jun Morita entitled "Automorphisms and derivations of Borel subalgebras and their nilradicals in Kac-Moody algebras".