

INVARIANT HOLONOMIC SYSTEMS FOR SYMMETRIC SPACES

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This work is joint with Bellamy, Levasseur and Nevins.

Fix a complex reductive Lie group G with Lie algebra \mathfrak{g} and let V be a symmetric space over \mathfrak{g} with ring of differential operators $\mathcal{D}(V)$. A fundamental class of $\mathcal{D}(V)$ -modules consists of the *admissible modules* (these are natural analogues of highest weight \mathfrak{g} -modules). In this lecture I will describe the structure of some important admissible modules. In particular, when $V = \mathfrak{g}$ these results reduce to give Harish-Chandra's regularity theorem for G -equivariant eigendistributions and imply results of Hotta and Kashiwara on invariant holonomic systems.

A key technique is relate the invariant differential operators $\mathcal{D}(V)^G$ on V to a class of algebras known as *Cherednik algebras*.

The talk will be suitable for a general audience.