

1056-17-665

Charles H Conley* (conley@unt.edu), Department of Mathematics, 1155 Union Circle
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operator modules.*

Suppose that one has an infinite dimensional Lie algebra of vector fields on a manifold, for example the set of all vector fields, or, if the manifold has a contact structure, the contact vector fields. Assume that this Lie algebra contains a distinguished finite dimensional semisimple maximal subalgebra, usually called its projective or conformal subalgebra.

There are various spaces of differential operators on the manifold which carry natural representations of such Lie algebras. The projective or conformal quantization of such a representation is its decomposition into irreducible representations of the subalgebra. We discuss recent results on quantizations and their applications to cohomology, geometric equivalences and symmetries of differential operator modules, and indecomposable modules. Our methods are algebraic: we consider only Euclidean manifolds. (Received September 15, 2009)