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Parabolic Subalgebras of Finitary Lie Algebras

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Abstract: Parabolic subgroups of a finite-dimensional Lie group correspond to compact homogeneous spaces (that is, spaces on which the group acts transitively). On the level of Lie algebras, the parabolic subalgebras are precisely those containing a maximal solvable subalgebra.

A Lie algebra which can be embedded in the Lie algebra \mathfrak{gl}_∞ is called finitary, and the natural representation of \mathfrak{gl}_∞ is useful in understanding finitary Lie algebras. A parabolic subalgebra of a finitary Lie algebra is defined to be any subalgebra containing a maximal locally solvable subalgebra. I will give an example to demonstrate that parabolic subalgebras need not be simply the union of nested parabolic subalgebras. The main result is that any parabolic subalgebra is the stabilizer of a generalized flag of a certain type, subject to trace conditions.

This work is joint with Ivan Penkov.

MMS 130

2:10–3:00pm

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