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Department of Mathematics
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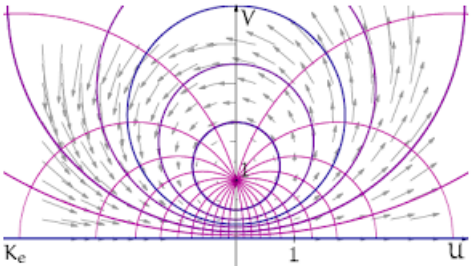

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On the equivariant cohomology of certain generalizations of symmetric spaces

Symmetric spaces form an important and much studied class of Riemannian manifolds. From the point of view of transformation groups, they are particular instances of homogeneous spaces, and as such come equipped with a natural Lie group action, the so-called isotropy action. What can be said about the equivariant cohomology ring of such an action? Neglecting the multiplicative structure, O. Goertsches has shown that each such ring is as simple as one could reasonably hope for. Namely, it is free as a module over a certain polynomial ring, the ring of invariants of the acting Lie group.

The purpose of this talk is to introduce equivariant cohomology, to present various known results concerning the equivariant cohomology of isotropy actions, and to indicate how Goertsches result can be extended to a certain class of homogeneous spaces that generalizes the class of symmetric spaces.