A PANORAMA OF MULTIPLICITY FREE ACTIONS IN ALGEBRA AND GEOMETRY

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ABSTRACT. A quotient of finite groups G/H is called a multiplicity free coset space if the induced trivial representation of H is a multiplicity free G representation. A generalization of this notion in algebraic geometry can be formulated as follows: A G-variety X is called a multiplicity free G space if it admits a dense open G orbit which is a multiplicity free homogeneous space. In this case, the action of G on X is said to be a multiplicity free action. In this talk we will discuss several families of multiplicity free spaces starting with some recent examples in finite group theory, and ending with some theorems about diagonal multiplicity free actions. Our talk will be accessible to non-experts.