Irreducible finite-dimensional representations of equivariant map algebras.

Let \( g \) be a finite-dimensional simple Lie algebra and \( A \) an affine algebraic variety defined over an algebraically closed field of characteristic 0. Let \( G \) be a finite group which acts via automorphisms upon \( g \) and \( A \). The Lie algebra of regular maps from \( A \) to \( g \) which are equivariant under the action of \( G \) is called an equivariant map algebra. Examples of such algebras include current algebras, multiloop algebras (in particular, the untwisted loop algebras \( g \otimes k[t^\pm1] \) and their twisted subalgebras), and the Onsager algebras. In this talk we will classify the finite-dimensional irreducible representations of an arbitrary equivariant map algebra, and describe some conditions which ensure that all such representations are given by evaluation representations of \( g \).

This is joint work with Erhard Neher and Alistair Savage. (Received September 22, 2010)