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**Alistair Savage\*** ([alistair.savage@uottawa.ca](mailto:alistair.savage@uottawa.ca)), Department of Mathematics, University of Ottawa, 585 King Edward Ave, Ottawa, Ontario K2P2H1, Canada. *Equivariant map superalgebras.*

Suppose a finite group acts on a scheme (or algebraic variety)  $X$  and a “target” Lie superalgebra  $\mathfrak{g}$ . Then the space of equivariant algebraic maps from  $X$  to  $\mathfrak{g}$  is a Lie superalgebra under pointwise multiplication. We call this an equivariant map superalgebra. An important class of examples are the (twisted) loop superalgebras, where the variety  $X$  is the one-dimensional torus.

In this talk we will present a classification of the irreducible finite-dimensional representations of an equivariant map superalgebra where the target  $\mathfrak{g}$  is a basic classical Lie superalgebra and the group in question acts freely on  $X$ . It turns out that all irreducible finite-dimensional representations are generalized evaluation representations. In the case that the even part of  $\mathfrak{g}$  is semisimple, they are in fact all evaluation representations. As a corollary of our general result, we obtain the first classification of the twisted loop superalgebras. (Received January 16, 2012)