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**John Lind\*** (jlind@math.jhu.edu). *Equivariantly Twisted Cohomology Theories.*

Twisted K-theory is a cohomology theory whose cocycles are like vector bundles but with locally twisted transition functions. If we instead consider twisted vector bundles with a symmetry encoded by the action of a compact Lie group, the resulting theory is equivariant twisted K-theory. This subject has garnered much attention for its connections to conformal field theory and representations of loop groups. While twisted K-theory can be defined entirely in terms of the geometry of vector bundles, there is a homotopy-theoretic formulation using the language of parametrized spectra. In fact, from this point of view we can define twists of any multiplicative generalized cohomology theory, not just K-theory. The aim of this talk is to explain how this works, and then to propose a definition of equivariant twisted cohomology theories using a similar framework. The main ingredient is a structured approach to multiplicative homotopy theory that allows for the notion of a  $G$ -torsor where  $G$  is a grouplike  $A_\infty$  space. (Received September 17, 2013)