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Title: Equivariant elliptic cohomology and spectral algebraic geometry

Abstract: Spectral algebraic geometry (SAG) is algebraic geometry based on E_∞ ring spectra instead of commutative rings. One of the major motivations for its development was and is the construction and study of topological modular forms (TMF) and its equivariant counterparts. While SAG based on connective E_∞ rings (i.e. those with vanishing negative homotopy groups) remains closer to classical algebraic geometry, the relevant E_∞ rings for TMF are even-periodic. These have associated formal groups and thus SAG with those E_∞ rings often resembles classical algebraic geometry over the moduli stack of formal groups. After giving a short introduction to E_∞ rings and spectral algebraic geometry, I will present two instances of this philosophy, yielding in particular a definition of TMF. In the second part I will concentrate on which role SAG plays in the definition and study of equivariant TMF.