

TAF via curves

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Abstract

The theories of Topological Automorphic Forms (TAF) introduced by Behrens and Lawson are (p -complete) generalizations of the theory of Topological Modular Forms, where, roughly speaking, elliptic curves are replaced by higher-dimensional abelian varieties with suitable extra structure. In this talk, I am going to report on joint work with S. Thyssen (Ruhr-Uni Bochum), producing first examples of p -local TAF homology theories of height three. The corresponding one-dimensional formal groups arise as split summands of the formal groups of certain abelian three-folds, the Shimura variety of which can be reinterpreted as moduli of a family of Picard curves. This allows an explicit description of an automorphic form valued genus in terms of the coefficients of these curves. Moreover, our construction is such that the theories naturally come with restriction maps to TAF theories of lower height.