Mathematics, Statistics, and Computer Science **@ UIC**

Geometry, Topology and Dynamics Seminar

Universal O-modules and representations of the automorphism group of a formal disk

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Abstract: Universal O- and D-modules (introduced by Beilinson and Drinfeld) arise in the study of the equivalence between certain categories of vertex algebras and chiral algebras. A universal O-module of dimension d is an assignment of a quasi-coherent sheaf to each smooth variety of dimension d, in a way compatible with étale morphisms between the varieties. This seems like a lot of data, but it turns out that it is equivalent to the data of a single representation of a group, the group of automorphisms of the formal d-dimensional disk. This equivalence of categories can be proved via an intermediate category, the category of quasi-coherent sheaves on a stack of étale germs of d-dimensional varieties. For those who have not seen stacks in action, this is a nice and approachable example of how they can be used to organize complicated structures and answer questions which otherwise seem quite intractable. No prior knowledge of stacks will be assumed.

The talk will provide an introduction to stacks and what they're good for, and how people work with them through an accessible example of that sort of thing.

Monday, April 17 at 3:00 PM in SEO 636