

Topology Seminar

Michael Ching

of Amherst College will be speaking on

Tangent ∞ -categories and Goodwillie calculus

on April 27 at 4:30 in
MIT Room 2-131

(Joint with Kristine Bauer and Matthew Burke.) Lurie defines the “tangent bundle” to an ∞ -category C to be the ∞ -category of excisive functors from finite pointed spaces to C . In this talk, I will describe an abstract framework which includes both this construction and the ordinary tangent bundle functor on the category of smooth manifolds (as well as many other examples). That framework is an extension to ∞ -categories of the “tangent categories” of Cockett and Cruttwell (based on earlier work of Rosický).

Those authors and others have explored the extent to which various concepts from differential geometry, such as connections, curvature and cohomology, can be developed abstractly within a tangent category. Thus our result provides a framework for “doing” differential geometry in the context of Goodwillie’s calculus of functors. For example, we show that Goodwillie’s notion of n -excisive functor can be recovered from the general notion of “ n -jet” in a tangent category.

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