

Geometry and Topology

On the classification of excisive functors

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The Goodwillie derivatives of the identity functor form an operad, and the derivatives of a general functor form a module over this operad. However, the module structure does not suffice to determine the Taylor tower. We will describe a certain refinement of the module structure, and show how it determines the Taylor tower, at least for excisive functors. For spectra-valued functors, the additional structure can be described as modules over a ‘pro-operad’. The module structure does determine the Taylor tower in situations where the Tate construction vanishes (e.g., if one localizes rationally or at $K(n)$). We will discuss some examples that illustrate this phenomenon.

This is joint work with Michael Ching.