Sarah Yeakel* (syeakel@math.umd.edu). A chain rule in Goodwillie calculus.

In Goodwillie’s calculus of functors, a homotopy functor can be filtered by polynomial approximations where the homogeneous fibers are classified by certain spectra, called the derivatives of the functor. For functors between spaces and spectra, these derivatives assemble to form modules over operads, and the derivatives of composable functors satisfy a chain rule. We will discuss these results and possible extensions to functors between other categories. (Received July 25, 2017)