
KRISTINE BAUER, University of Calgary

Faa di Bruno for bicategories

The Faà di Bruno formula is the famous formula which allows one to compute the higher derivatives of a composition of functions of a real variable. It can also be used to generalize the chain rule in differential categories (see work of Cockett and Seely, Cruttwell, and Lemay on this topic). There are a few examples of categorical differentiation which involve homotopy, most notably for abelian functor calculus (Bauer, Johnson, Osborne, Riehl and Tebbe 2018) or for infinity categories (Bauer, Burke and Ching, in progress). In this talk, I will explain how the Faa di Bruno construction in differential category theory must be expanded to be used in homotopy theory (specifically in abelian functor calculus). In particular, I will describe a program for obtaining a Faa di Bruno formula for bicategories.