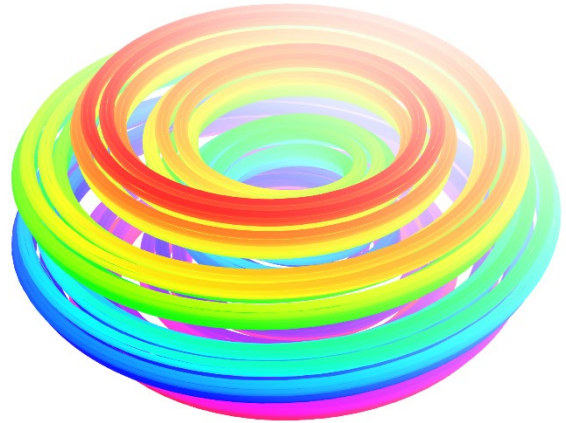


The Oliver Club

www.math.cornell.edu/~oliver/

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“Better Invariants”



Abstract: Many of the classical functors $F : \mathcal{C} \rightarrow \mathcal{D}$ of homological algebra and algebraic topology factor through a “definable version” of the category \mathcal{D} , as in the following diagram:

$$\begin{array}{ccc} \mathcal{C} & \xrightarrow{\text{definable } F} & \text{definable } \mathcal{D} \\ & \searrow F & \downarrow \\ & & \mathcal{D} \end{array}$$

The corresponding “definable F ” provides significantly stronger invariants for the spaces or groups in \mathcal{C} , particularly when the latter are limit objects such as the solenoid (pictured). As examples, we describe definable Ext and \lim^1 and Čech cohomology functors, showing that each distinguishes among uncountable classes of objects whose corresponding classical invariants are constant. As the terminology “definable” might suggest, this work represents an infusion of descriptive set theoretic techniques into algebraic contexts; it is joint with Martino Lupini and Aristotelis Panagiotopoulos.

(image credit: Henk Bruin.)

Friday, November 12, 2021
at 4:00 PM in 532 Malott Hall (Math lounge)

Refreshments will be served at 3:30 PM in the Mathematics Department lounge (532 Malott Hall).