

1143-55-204

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Dwyer–Kan homotopy theory for cyclic operads.

Cyclic operads, introduced by Getzler–Kapranov, are operads with extra symmetries which allow one to exchange ‘inputs’ and ‘outputs’. Many familiar operads admit a cyclic structure, for instance the associative, Lie and commutative operads, the A_∞ operad, and the framed little disks operads. We aim to study the homotopy theory for colored (i.e., multi-sorted) cyclic operads.

The Bergner model structure on categories enriched in simplicial sets admits an extension to the Cisinski–Moerdijk model structure on (colored) operads enriched in simplicial sets. The first is a model for $(\infty, 1)$ -categories, while the second is a model for ∞ -operads. The weak equivalences in both are called Dwyer–Kan equivalences, that is, maps which are locally Kan equivalences of simplicial sets and which induce equivalences on the underlying categories of components. We show that there is a corresponding model structure for the category of cyclic operads enriched in simplicial sets. (Received August 13, 2018)