

1134-94-36

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*Operads for modeling networks.*

A network is a complex of interacting systems which can often be represented as a graph equipped with extra structure. Networks can be combined in many ways, including by overlaying one on top of the other or sitting one next to another. We introduce network models - which are formally a simple kind of lax symmetric monoidal functor - to encode these ways of combining networks. By applying a general construction to network models, we obtain operads for the design of complex networked systems. (Received July 01, 2017)