



Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 17. April 2018

17 Uhr s.t., Geom H4

Dr. Alexander Schenkel
(University of Nottingham)

Homotopical algebraic quantum field theory

Abstract:

Algebraic quantum field theories (AQFTs) are traditionally described as functors that assign algebras (of observables) to spacetime regions. These functors are required to satisfy a list of physically motivated axioms such as commutativity of the multiplication for spacelike separated regions. In this talk we will show that AQFTs can be described as algebras over a colored operad. This operad turns out to be interesting as it describes an interpolation between non-commutative and commutative algebraic structures. We analyze our operad from a homotopy theoretical perspective and determine a suitable resolution that describes the commutative behavior up to coherent homotopies. We present two concrete constructions of toy-models of algebras over the resolved operad in terms of (i) forming cochains on diagrams of simplicial sets (or stacks) and (ii) orbifoldization of equivariant AQFTs.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.