

TOPOLOGY SEMINAR

Guest Speaker: Alexander Schenkel
University of Nottingham

Date: Tuesday, April 30, 2019

Time: 2:30 PM

Location: 258 Hurley Hall



Lecture Title:

An introduction to algebraic quantum field theory

Abstract

Algebraic quantum field theory (AQFT) is a well-established framework to axiomatize and study quantum field theories on Lorentzian manifolds, i.e. spacetimes in the sense of Einstein's theory of general relativity. In this introductory talk I will try to explain both the physical context and the mathematical formalism of AQFT in a way that is hopefully of interest to topologists. I will show that AQFTs are the algebras over a suitable colored operad which links the causal structure of Lorentzian manifolds to a commutative behaviour of the multiplication of quantum observables. Throughout the talk I will highlight similarities and also differences between AQFT and other approaches such as factorization algebras.