

Seminarankündigung

Deformationsquantisierung

Am 5. 2. 2021 spricht um 14 Uhr c.t.

<https://bbb.durates.net/b/ste-2va-uez>

MARCO BENINI (UNIVERSITÀ DI GENOVA)

Homotopical quantization of linear gauge theories

In a gauge theory, gauge transformations encode a useful higher structure that enables one to perform powerful constructions, e.g. BRST/BV quantization. The efficacy of the BRST/BV approach relies on the flexibility of introducing auxiliary fields, an operation which is formalized by quasi-isomorphisms. This flexibility comes at the price that all constructions must be derived, i.e. invariant under quasi-isomorphisms (as opposed to isomorphisms). Focusing on the prototypical example of linear Yang-Mills theory, I will present a standard model for its derived critical locus and equip the associated complex of linear observables with its canonical shifted Poisson structure (antibracket). I will show how global hyperbolicity of the background Lorentzian manifold entails that this shifted Poisson structure is (homologically) trivial and observe the existence of two distinguished ways to trivialize it. Combining these trivializations leads to a non-trivial unshifted Poisson structure, which I will quantize via canonical commutation relations. This leads to an explicit example of a homotopy algebraic quantum field theory, where the time-slice axiom is encoded weakly by quasi-isomorphisms (as opposed to isomorphisms).

gez. Stefan Waldmann