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An introduction to causal fermion systems and the causal action principle

Abstract:
The theory of causal fermion systems is an approach to describe fundamental physics. It gives quantum mechanics, general relativity and quantum field theory as limiting cases and is therefore a candidate for a unified physical theory. Moreover, causal fermion systems provide a general framework for modelling and analyzing non-smooth spacetime structures. The dynamics of a causal fermion system is described by a nonlinear variational principle, the causal action principle.
The aim of the talk is to give a simple introduction, with an emphasis on the underlying concepts. At the end of the talk, I will briefly outline how to get the connection to quantum field theory in the algebraic formulation.