

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. From the mathematical perspective, causal fermion systems provide a general framework for describing and analyzing non-smooth geometries. The dynamics is described by the so-called causal action principle.

The aim of the talk is to give a simple introduction, with an emphasis on conservation laws (surface layer integrals) and the connection to quantum field theory.