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Causality in noncommutative deformation spacetimes

Thursday 29 September 2022 12:20 (30 minutes)

A notion of causality specific to noncommutative geometry was introduced in 2013 by Franco and Eckstein, leading at the same time to a notion of Lorentzian metric. This notion has been widely explored with regards to almost-commutative space-times. In this talk, we present a more difficult exploration concerning “truly” noncommutative spacetimes, i.e. deformation spacetimes as Moyal spacetime and kappa-Minkowski spacetime. In both cases, a complete characterisation of the whole causal structure is still out of sight, but it is possible to highlight interesting allowed causal relations as well as constraints, which are some quantum analogues of classical causal relations and constraints but defined on non-local states.

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