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Title: Paracausal deformations of globally hyperbolic spacetimes and their applications in AQFT.

Abstract: In recent work with V. Moretti and S. Murro we constructed a family of isomorphisms, relating the solution spaces of normally hyperbolic operators built out of (possibly different) globally hyperbolic spacetimes. These operators extend to isomorphisms of the free quantum field algebras associated with the classical dynamics described by the aforementioned hyperbolic PDEs; moreover, they preserve the singularity structure of states. Since we were inspired by scattering theory, these isomorphisms were named Møller operators.
In order to achieve our goal, we introduced the notion of paracausal relation in the set of globally hyperbolic Lorentzian structures on some fixed differentiable manifold: if two metrics fall in the same equivalence class, then the existence of the Møller operators is guaranteed.
In this talk I will summarize our results, focusing on the geometric construction we developed.