



Mathematical Physics

Construction of wedge-local nets of observables through Longo-Witten endomorphisms

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A convenient framework to treat massless two-dimensional scattering theories has been established by Buchholz. In this framework, we show that the asymptotic algebra and the scattering matrix completely characterize the given theory under asymptotic completeness and standard assumptions.

Then we obtain several families of interacting wedge-local nets by a purely von Neumann algebraic procedure. One particular case of them coincides with the deformation of chiral CFT by Buchholz-Lechner-Summers. In another case, we manage to determine completely the strictly local elements. Finally, using Longo-Witten endomorphisms on the $U(1)$ -current net and the free fermion net, a large family of wedge-local nets is constructed.

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