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On some algebraic properties of massless free nets

In [1] the authors present a direct method of constructing nets of local C*–algebras satisfying Haag–Kastler axioms. No explicit quantum field or state is needed. This method is based on standard results on CAR– and CCR–theory and on representation theory of the Poincaré group. Applying this procedure to *massless* representations we will comment on some typical features that are not present in the massive case: appearence of quantum constraints [2], covariance under the conformal group, counterpart of Strocchi's no–go theorems for the vector potential field.

References: [1] H. Baumgärtel, M. Jurke and F. Lledó, On free nets over Minkowski space, Rep. Math. Phys. **35** (1995), 101-127.

[2] F. Lledó, A family of examples with quantum constraints, Lett. Math. Phys. **40** (1997), 223-234.