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Local definiteness, primarity and quasiequivalence of quasifree Hadamard quantum states in curved spacetime. (English) [Zbl 0790.53077](#)

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Summary: We prove that the GNS-representations of quasifree, Hadamard states on the Weyl-algebra of the quantized Klein-Gordon field propagating in an arbitrary globally hyperbolic spacetime are locally quasiequivalent. We also show that these representations satisfy local primarity and local definiteness if the spacetime is assumed to be ultrastatic. This implies that the local von Neumann algebras associated with these representations are type III_1 -factors for sufficiently small regions in ultrastatic spacetimes.

MSC:

[53Z05](#) Applications of differential geometry to physics

[83C47](#) Methods of quantum field theory in general relativity and gravitational theory

Cited in **1** Review
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Keywords:

GNS-representations; Hadamard states; Weyl-algebra; Klein-Gordon field

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