

Local covariance in Epstein-Glaser renormalisation

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In a seminal work from 2000, Brunetti and Fredenhagen built on the causal perturbation theory of Epstein and Glaser to prove the renormalisability of scalar field theory on curved spacetimes. Their construction was criticized in subsequent publications by Hollands and

Wald for failing to satisfy local covariance. I will show that with appropriate modifications, local covariance can be achieved in the Brunetti-Fredenhagen construction, for distributions which resemble (classical) pseudodifferential operators. The crucial feature of such distributions is the existence of uniform asymptotic expansions.

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