

Locally covariant field theory and the Hadamard parametrix

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Date and Place: March 27, 2014, University of Vienna

ABSTRACT

I give an introduction to locally covariant field theory, a framework for quantum field theory on curved spacetimes. I highlight the role of the Hadamard parametrix in defining nonlinear observables, such as the stress-energy tensor or the current density. Some physically relevant information can be extracted from this object, such as anomalies or the nontrivial scaling behavior of observables (related to the renormalization group flow). Connections to microlocal analysis and index theory will be discussed, albeit rather superficially.