



Prof. Dr. Klaus Fredenhagen **Algebraic structures in classical and quantum field theory**

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Quantum field theory is governed by the principles of locality and covariance. It will be discussed how these principles can be formulated in the presence of gravitational fields and how they are encoded in various algebraic structures, among them the Peierls bracket of classical field theory, the operator product and the time ordered product of quantum field theory, up to the algebraic properties of the renormalization group. The leading mathematical concept is that of a natural transformation between suitable functors.

Kontakt:

Humboldt-Universität zu Berlin . Institut für Mathematik
SFB 647 . Unter den Linden 6 . 10099 Berlin
Tel. +49 30 2093 1804 . Fax. +49 30 2093 2727
sfb647@math.hu-berlin.de

www.raumzeitmaterie.de