

Quantum Fields, Local Algebras and their Representations

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I give a brief introduction into the algebraic approach to quantum field theory (AQFT), discussing the notion of local algebras of observables and their representations. As an application, I comment on recent developments towards an algebraic description of quantum gravity, combining ideas from the theory of von Neumann algebras, Tomita-Takesaki modular theory and Mackey's imprimitivity theorem.

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