RELATIVISTIC INVARIANCE
AND MASS RENORMALIZATION
IN QUANTUM FIELD THEORY

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S u m m a r y

Starting from the instant form of relativistic quantum
dynamics for a system of interacting fields, where
only the Hamiltonian and the boost operators carry
interactions among ten generators of the Poincaré group,
we propose a constructive way of ensuring the relativistic
invariance (RI) in quantum field theory (QFT) with
cutoffs in the momentum space. Our approach is based
on an opportunity to separate a part in the primary
Hamiltonian interaction, whose density in the Dirac (D)
picture is the Lorentz scalar. In this work, we study the
compatibility of the RI requirements as a whole, i.e.,
the fulfilment of the well-known commutations for these
generators with the structure of mass counterterms in
the total field Hamiltonian.