

# Matteo Capoferri: The massless Dirac operator: global propagator and applications.

*jeudi 7 juillet 2022 15:30 (1 heure)*

In my talk I will present a global, invariant and explicit construction of hyperbolic propagators on closed Riemannian manifolds, with a special focus on the massless Dirac operator in dimension 3. I will show that the propagator can be written, modulo an operator with infinitely smooth kernel, as the sum of two oscillatory integrals, global in space and in time, and that this can be done in an invariant geometric fashion. I will then analyse the results through the prism of pseudodifferential techniques developed in a series of recent joint papers by Dmitri Vassiliev and myself, which, among other things, allow one to extend the construction to the Lorentzian setting.

Time permitting, I will discuss applications to spectral theory and quantum field theory.

The talk is based on joint work with Dmitri Vassiliev (UCL) and Simone Murro (Genova).