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*Hyperbolic propagators in curved space*

In my talk I will discuss how it is possible, in the spirit of some classical results due to Laptev, Safarov and Vassiliev, to write the propagator of a class of hyperbolic operators on manifolds as one single oscillatory integral with complex-valued phase function, *global* both in space and in time. In particular, a more refined, geometric version of the method will be presented, in the Riemannian setting: the adoption of a distinguished complex-valued phase function, naturally dictated by the geometric framework, will allow us to visualise the process of circumventing topological obstructions. The microlocal method is explicit and constructive; the calculation of the subprincipal symbol of the propagator enables us to recover asymptotic spectral properties of the operators at hand. I will discuss explicit formulae and recent results for the wave operator.

This is joint work with D. Vassiliev.