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title: On the construction of Hadamard states for the linearized Einstein equations

abstract: The quantization of linear gauge theories on curved spacetimes is subject to significant difficulties arising from the necessity of combining high-frequency aspects with gauge invariance and positivity. While the Maxwell and linearized Yang-Mills cases enjoy special features related to Hodge theory, linearized gravity appears to be even more subtle.

In this talk, I will present recent attempts based on Wick rotation near a Cauchy surface. We will show that Calderón projectors for the Wick-rotated equations on manifolds with boundary induce Hadamard bisolutions on the Lorentzian level. On the other hand, we find smoothing obstructions to gauge-invariance and positivity conditions needed in quantization for a fairly large class of boundary conditions.

The talk is based on ongoing collaborations with Christian Gérard (Paris-Saclay), Matteo Capoferri (Heriot-Watt), Gabriel Schmid (Genoa) and Michał Wrochna (Utrecht).