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General Relativity and Quantum Cosmology

Hadamard States for the Vector Potential on Asymptotically Flat Spacetimes

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(Submitted on 28 Jun 2011 (v1), last revised 22 Jul 2011 (this version, v3))

We develop a quantization scheme for the vector potential on globally hyperbolic spacetimes which realizes it as a locally covariant conformal quantum field theory. This result allows us to employ on a large class of backgrounds, which are asymptotically flat at null infinity, a bulk-to-boundary correspondence procedure in order to identify for the underlying field algebra a distinguished ground state which is of Hadamard form.

Comments: 26 pages, section 3 and 4 revised

General Relativity and Quantum Cosmology (gr-qc); High Energy Physics -Subjects:

Theory (hep-th); Mathematical Physics (math-ph)

MSC classes: 81T05, 81T20

Cite as: arXiv:1106.5575 [gr-qc]

(or arXiv:1106.5575v3 [gr-qc] for this version)

Submission history

From: Claudio Dappiaggi [view email] [v1] Tue, 28 Jun 2011 06:51:32 GMT (31kb) [v2] Mon, 11 Jul 2011 15:40:25 GMT (31kb,D) [v3] Fri, 22 Jul 2011 17:13:49 GMT (31kb,D)

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