

Contribution Title: STUDYING THE BACKREACTION OF QUANTUM
SCALAR FIELDS IN A COSMOLOGICAL SCENARIO
Authors: C. Dappiaggi
Presenting author: Dappiaggi C.
Affiliation: II. Institut für Theoretische Physik - Hamburg Universität
E-mail: claudio.dappiaggi@desy.de
Invited speaker: NO
YRS seminar: NO

We discuss the backreaction properties of a quantum massive scalar field in a Friedmann-Robertson-Walker spacetime with flat spatial section. Particularly we shall prove that, in the framework of the algebraic description of quantum field theory over curved backgrounds, it is possible to show the existence of late time stable de Sitter like solutions of the semiclassical Einstein's equations. The overall construction depends on the possibility to employ, as building blocks, Hadamard states whose existence is proved in a large class of cosmological spacetimes by means of a bulk-to-boundary reconstruction procedure.

The talk will be based on the following papers:

- [1] C.D., K. Fredenhagen and N. Pinamonti, Phys. Rev. D 77 (2008) 104015,
- [2] C.D., V. Moretti and N. Pinamonti, Commun. Math. Phys. 285 (2009) 1129,
- [3] C.D., V. Moretti and N. Pinamonti, [arXiv:0712.1770 [gr-qc]].