Contribution ID: **46** Type: **Contributed talk**

Quantum energy inequalities in integrable models

Wednesday, 30 August 2023 15:20 (20 minutes)

Many results in general relativity rely crucially on classical energy conditions inflicted on the stress-energy tensor. Quantum matter, however, violates these conditions since the energy density can fluctuate and in particular become arbitrarily negative at a point. Nonetheless quantum matter should have some reminiscent notion of stability, which can be captured by so-called quantum (weak) energy inequalities (QEIs), lower bounds of the smeared quantum stress-energy tensor. QEIs could be proven in many free quantum field theories (QFT) on both flat and curved spacetimes. However, it is less clear what happens in models with self-interaction.

We will present numerical and analytical results on QEIs in a large class of 1+1d models referred to as integrable QFTs. As particular examples we treat the O(n)-nonlinear-sigma and sinh-Gordon model at 1- and 2-particle level.

Parts of the talk are based on https://arxiv.org/abs/2302.00063.

Primary author: MANDRYSCH, Jan (Leipzig University)

Co-authors: CADAMURO, Daniela (Leipzig University); BOSTELMANN, Henning (University of York)

Presenter: MANDRYSCH, Jan (Leipzig University)

Session Classification: Afternoon session 1