

Future stability of solutions to the Einstein non-linear scalar field system corresponding to initial data on the n -torus

It is possible to prove quite a general future stability result for spatially compact, spatially locally homogeneous solutions to the Einstein non-linear scalar field system in case

- the potential has a positive non-degenerate minimum at the origin and the scalar field is initially small (this case includes Einstein's vacuum equations with a positive cosmological constant as a special case),
- the potential is of a certain exponential type.

In both cases, the fact that certain model solutions corresponding to initial data specified on the 3-torus are future stable constitutes the essence of the argument. The purpose of the talk is to give an outline of the proof of this fact. In other words, the focus of the presentation is on the hyperbolic PDE aspects of the problem as opposed to the geometric aspects.