E I N L A D U N G

Literaturseminar

zum Vortrag

von

Anne Franzen

(Lisbon)

über

„The wave equation near flat Friedmann-Lemaître-Robertson-Walker and Kasner Big Bang singularities"

Abstract:

We consider the wave equation, $\square_g\psi=0$, in fixed flat Friedmann-Lemaître-Robertson-Walker and Kasner spacetimes with topology $\mathbb{R}_+\times\mathbb{T}^3$. We obtain generic blow up results for solutions to the wave equation towards the Big Bang singularity in both backgrounds. In particular, we characterize open sets of initial data prescribed at a spacelike hypersurface close to the singularity, which give rise to solutions that blow up in an open set of the Big Bang hypersurface $\{t=0\}$. The initial data sets are characterized by the condition that the Neumann data should dominate, in an appropriate L^2-sense, up to two spatial derivatives of the Dirichlet data. For these initial configurations, the $L^2(\mathbb{T}^3)$ norms of the solutions blow up towards the Big Bang hypersurfaces of FLRW and Kasner with inverse polynomial and logarithmic rates respectively. Our method is based on deriving suitably weighted energy estimates in physical space. No symmetries of solutions are assumed.

Zeit: Donnerstag, 06.06.2019, **14.00**

Ort: Arbeitsgruppe Gravitation, Währinger Straße 17, Seminarraum A, 2. Stock

gez.: P. T. Chruściel, D. Fajman