

Semilinear de Sitter model of cosmology - global existence of small data solutions

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In this talk we consider the Cauchy problem for semilinear de Sitter models with power non-linearity. The model of interest is

$$\begin{aligned}\phi_{tt} - e^{-2t} \Delta \phi + n \phi_t + m^2 \phi &= |\phi|^p, \\ (\phi(0, x), \phi_t(0, x)) &= (f(x), g(x)),\end{aligned}$$

where m^2 is a non-negative constant. We study the global (in time) existence of small data solutions. In particular, we show the interplay between the power p , admissible data spaces and admissible spaces of solutions (in weak sense, in sense of energy solutions or in classical sense).

These are joint considerations with Marcelo Rempel Ebert (University of Sao Paulo).