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Karen Yagdjian* (yagdjian@utpa.edu), Department of Mathematics, University of Texas-Pan American, 1201 West University Drive, Edinburg, TX 78539. *The blowup for the semilinear Klein-Gordon equation in de Sitter spacetime.*

In this talk we present the blowup phenomena for the solutions of the semilinear Klein-Gordon equation $\square_g \phi - m^2 \phi = -|\phi|^p$ with the small mass $m \leq n/2$ in de Sitter spacetime with the metric g . We prove that for every $p > 1$ large energy solutions blow up, while for the small energy solutions we give a borderline $p = p(m, n)$ for the global in time existence. The consideration is based on the representation formulas for the solution of the Cauchy problem and on some generalizations of Kato's lemma. (Received September 22, 2009)