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Anahit Galstyan* (agalstyan@utpa.edu), Department of Mathematics, University of Texas-Pan American, 1201 West University Drive, Edinburg, TX 78539. *Some hyperbolic equations arising in mathematical cosmology.*

In 1917, shortly after development of General Theory of Relativity, Einstein and then de Sitter proposed model of universe based on Einstein's gravitational theory. Since that time the wave equations arising in the de Sitter model of universe are subject of the research of huge number of physicists and mathematicians. But very important problems of the finding of the fundamental solutions and the representation formulas for the solutions of the Cauchy problem for these partial differential equations are not solved. We will present representation formulas for the solutions of the Cauchy problem for the wave and Klein-Gordon equations in the de Sitter and Einstein&de Sitter metric. We believe that the explicit representation formulas introduced in this talk fill the gap in the existing literature on the initial value problems for the above mentioned equations. (Received September 22, 2010)