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Anahit Galstyan* (agalstyan@utpa.edu), Department of Mathematics, University of Texas-Pan American, 1201 West University Drive, Edinburg, TX 78539. *Similarity solutions for some model equations appearing in the gas dynamics.*

In this talk we will discuss the issue of global existence of the solutions of the Cauchy problem for one-dimensional semilinear weakly hyperbolic equations, appearing in the boundary value problems of gas dynamics. We give some sufficient conditions for the existence of the global weak solutions. We will present the necessary condition for the existence of the similarity solutions for the one-dimensional semilinear Gellerstedt-type equation. Our approach is based on the fundamental solution of the operator and the L_p - L_q estimates for the linear Gellerstedt equations. (Received September 21, 2011)