1022-76-25   **Yue Liu*** (`yliu@uta.edu`), Department of Mathematics, University of Texas, Arlington, TX 76019, and **Zhaoyang Yin** (`yin@ifam.uni-hannover.de`), Institute of Applied Mathematics, University of Hanover, 30167 Hanover, Germany. *Global Solutions and Wave-Breaking Phenomena for the Degasperis-Procesi Equation.* Preliminary report.

This talk is concerned with several aspects of the existence of global solutions and the formation of singularities for the Degasperis-Procesi equation on the line. Global strong solutions to the equation are determined for a class of initial profiles. On the other hand, it is shown that the first blow-up can occur only in the form of wave-breaking. A new wave-breaking mechanism for solutions is described in detail and two results of blow-up solutions with certain initial profiles are established. (Received August 28, 2006)