GLOBAL WELL–POSEDNESS OF THE CAUCHY PROBLEM FOR THE JORDAN–MOORE–GIBSON–THOMPSON EQUATION

REINHARD RACKE[1] & BELKACEM SAID-HOUARI[2]

Abstract. In this paper, we consider the Cauchy problem of a third order in time nonlinear equation known as the Jordan–Moore–Gibson–Thompson (JMGT) equation arising in acoustics as an alternative model to the well-known Kuznetsov equation. First, using the contraction mapping theorem, we show a local existence result in appropriate function spaces. Second, by using the energy method together with a bootstrap argument, we prove a global existence result for small data. Third, polynomial decay rates in time for the solution will be obtained for space dimensions $N \geq 2$.

[1] Department of Mathematics, University of Konstanz, 78457 Konstanz, Germany, reinhard.racke@uni-konstanz.de.

[2]Department of Mathematics, College of Sciences, University of Sharjah, P. O. Box: 27272, Sharjah, United Arab Emirates, bsaidhouari@gmail.com.