

Seventh Mississippi State - UAB Conference on Differential Equations - Computational Simulations, November 1–3, 2007, Doubletree Hotel, Birmingham, AL, USA

Coauthors: Dr. Mubenga Nkashama

BOUNDED SOLUTIONS OF NONLINEAR PARABOLIC SYSTEMS

NSOKI MAVINGA

We consider coupled systems of two nonlinear parabolic equations on a domain which is bounded in space and unbounded in time (namely the entire real line). We establish the existence of bounded solutions existing for all time by using a combination of a priori estimates, comparison techniques, nonlinear approximations, embedding of function spaces, and Gagliardo-Nirenberg type interpolation inequalities which we derive. Additional conditions ensure uniqueness or multiplicity of solutions. Some examples will be given to illustrate the results.

UNIVERSITY OF ALABAMA AT BIRMINGHAM
E-mail address: `mavinga@math.uab.edu`