

Semilinear parabolic equations with asymptotically linear growth

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Abstract. We present some recent work on the existence and behaviour of solutions for a class of semilinear parabolic equations, defined on a bounded smooth n -dimensional domain, and we assume that the nonlinearity is asymptotically linear at infinity. We analyze the behavior of the solutions when the initial data varies in the phase space. We obtain global solutions which may be bounded or blowup in infinite time (grow-up). Our main tools are the comparison principle and variational methods. Particular attention is paid to initial data at high energy level. We use the Nehari manifold to separate the phase space into regions of initial data where uniform boundedness or grow-up behavior of the semiflow may occur. This is based on a joint work with L. Maia.