

Modulus of continuity in semilinear classical damped wave equations

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In this talk we consider the Cauchy problem for the semilinear damped wave equation

$$u_{tt} - \Delta u + u_t = h(u), \quad u(0, x) = \phi(x), \quad u_t(0, x) = \psi(x),$$

where $h(s) = |s|^{1+\frac{2}{n}}\mu(|s|)$. Here n is the space dimension and μ is a modulus of continuity. Our goal is to obtain sharp conditions on μ to obtain a threshold between global (in time) existence of small data solutions (stability of the zero solution) and blow-up behavior even of small data solutions.