

LONG-TIME BEHAVIOUR FOR A QUASILINEAR PLATE EQUATION WITH MEMORY

MARCIO ANTONIO JORGE SILVA * & TO FU MA †

This talk is concerned with the existence of global attractors for a class of plate equations with memory and lower order perturbation of p -Laplacian type

$$u_{tt} + \Delta^2 u - \Delta_p u + \int_0^t g(t-s)\Delta u(s)ds - \Delta u_t + f(u) = h(x) \quad \text{in } \Omega \times \mathbb{R}^+,$$

where Ω is a bounded domain of \mathbb{R}^N . Here, $g > 0$ is a memory kernel which decays exponentially and $f(u)$ is nonlinear perturbation. In the case $h = 0$, the exponential stability of the problem was considered in [1]. This kind of problem, without the memory term, models elasto-plastic flows and its long-time behaviour was considered in [2].

References

- [1] D. A. ANDRADE, M. A. JORGE SILVA AND T. F. MA, Exponential stability for a quasilinear plate equation with memory, preprint, 2011.
- [2] YANG ZHIJIAN, Longtime behavior for a nonlinear wave equation arising in elasto-plastic flow, *Math. Meth. Appl. Sci.*, **32**, 1082-1104, 2009.

*DMAT-UEL, 86051-990 Londrina, PR, Brasil, Supported by FAPESP, e-mail: marcioajs@uel.br.

†ICMC-USP, 13560-970 São Carlos, SP, Brasil, Supported by CNPq and FAPESP, e-mail: matofu@icmc.usp.br.