## A Nonlinear Plate Control without Linearization Kenan Yildirim

Mus Alparslan University, Mus, Turkey k.yildirim@alparslan.edu.tr

Keywords: Vibration, Control, Linearization

In this paper, an optimal vibration control problem for a nonlinear plate is considered. In order to obtain the optimal control function, wellposedness and controllability of the nonlinear system is investigated. The performance index functional of the system, to be minimized by minimum level of control, is chosen as sum of the quadratic functional of the displacement and velocity of the plate and quadratic functional of the control function is added to the performance index functional as a penalty term. Hence, it is shown that optimal control of the nonlinear systems can be obtained without linearization of the nonlinear term.

Acknowledgements. This work was supported in the context of Scientific Research Project(MSU16-EMF-G05) by Mus Alparslan University, Turkey.