

A dynamic evolution model for perfectly plastic plates

GIOVANNI MAGGIANI

Affiliation: Department of Mathematics, University of Pavia, ITALY

email: g.maggiani01@ateneopv.it

We consider the dynamic evolution of a linearly elastic-perfectly plastic plate subject to a purely vertical body load. As the thickness of the plate goes to zero, we prove that the three-dimensional evolutions converge to a solution of a certain reduced model. In this limit model admissible displacements are of Kirchhoff-Love type. Moreover, the motion of the body is governed by an equilibrium equation for the stretching stress, a hyperbolic equation involving the vertical displacement and the bending stress, and a rate-independent plastic flow rule. Some further properties of the reduced model are also discussed. This a joint work with Maria Giovanna Mora.

References:

- [1] G.B. Maggiani, M.G. Mora: A dynamic evolution model for perfectly plastic plates. Preprint, (2015).