

A simplified model for elastic thin shells

In this lecture, I present a result obtained with D. Blanchard about the nonlinear elastic thin shells. We introduce a simplified model for the minimization of the elastic energy in thin shells. This model is not obtained by an asymptotic analysis. The thickness of the shell remains a parameter as in the Reissner-Mindlin's model for plates and the Koiter's model for shells in the linear case. The simplified model admits always minimizers by contrast with the original one. We show the relevance of our approach by proving that the minimum of the simplified model and the infimum of the full model have the same limit as the thickness tends to 0.