

Decomposition of shells deformations. Asymptotic behavior of the Green - St Venant strain tensor

This talk deals with the behavior of the deformation of a thin shell, whose thickness δ tends to zero, through a decomposition technique of these deformations. The terms of the decomposition of a deformation v are estimated in terms of the L^2 -norm of the distance from ∇v to $SO(3)$ and δ . This permits in particular to derive accurate nonlinear Korn's inequalities for shells (or plates). Then this decomposition technique and estimates allow to describe the asymptotic behavior of the Green - St Venant's strain tensor for different levels (with respect to δ) of the "stain energy".