The Cosserat Vector in Membrane Theory: A variational Approach

Guy Bouchitté
Département de Mathématiques
Université du Sud-Toulon-Var BP 132
83957 La Garde Cedex, France
bouchitte@univ-tln.fr

Irene Fonseca
Department of Mathematicla Sciences
Carnegie Mellon Unviersity
Pittsburgh, PA 15213
fonseca@andrew.cmu.edu

M. Luisa Mascarenhas
Departamento de Matemática da F.C.T.-U.N.L. e C.M.A-U.N.L.
Quinta da Torre
2829-516 Caparica, Portugal
mascar@fct.unl.pt

Abstract: In a previous article (see [BFM]) the autors studied a model of nonlinear membrane where the external surface loading induces a density of bending moment. Due to the special form of the applied surface forces, the emerging Cosserat vector, resulting from the 3D-2D dimension reduction, was restricted to a class of two dimensional functions. In the paper the full 3D dependence of the Cosserat vector is analyzed via Γ-convergence techniques.