

**Pantz, Olivier**

**On the justification of the nonlinear inextensional plate model.** (English) Zbl 1030.74031  
*Arch. Ration. Mech. Anal.* 167, No. 3, 179-209 (2003).

Summary: We consider a cylindrical three-dimensional body, made of a Saint Venant-Kirchhoff material, and we let its thickness go to zero. For a specific order of magnitude for the applied loads and under appropriate restrictions on the set of admissible deformations, we show that the almost-minimizers of the total energy converge toward deformations that minimize the nonlinear bending energy obtained by *D. D. Fox, A. Raoult* and *J. C. Simo* [*ibid.* 124, No. 2, 157-199 (1993; [Zbl 0789.73039](#))] using formal asymptotic expansions. Our result is obtained by  $\Gamma$ -convergence arguments.

**MSC:**

[74K20](#) Plates  
[74G65](#) Energy minimization in equilibrium problems in solid mechanics  
[35Q72](#) Other PDE from mechanics (MSC2000)

Cited in **1** Review  
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**Keywords:**

[gamma-convergence](#); [cylindrical three-dimensional body](#); [Saint Venant-Kirchhoff material](#); [minimizers](#); [total energy](#); [nonlinear bending energy](#); [vanishing thickness](#); [nonlinear plate model](#)

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