

## Periodically wrinkled plate model of the Föppl-von Kármán type

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**Abstract.** In this paper we derive, by means of  $\Gamma$ -convergence, the periodically wrinkled plate model starting from three dimensional nonlinear elasticity. We assume that the thickness of the plate is  $h^2$  and that the mid-surface of the plate is given by  $(x_1, x_2) \rightarrow (x_1, x_2, h^2\theta(\frac{x_1}{h}, \frac{x_2}{h}))$ , where  $\theta$  is  $[0, 1]^2$  periodic function. We also assume that the strain energy of the plate has the order  $h^8 = (h^2)^4$ , which corresponds to the Föppl-von Kármán model in the case of the ordinary plate. The obtained model mixes the bending part of the energy with the stretching part.

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