Basic modelling for large deformation on plates

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We investigate large deformations of plates with nonlinear elastic material. Therefore we consider a model using the Kirchhoff assumption locally, avoiding any further simplifications. This way of modelling leads to a two-dimensional strain tensor, which depends essentially on the two fundamental forms of the differential geometry of the deformed midsurface. The desperate ambitious Newton linearization of the arising equation is analytically very expensive. So we examine replacements by some modified Newton linearizations.

References:

[1] Arnd Meyer. Grundgleichungen und adaptive Finite-Elemente-Simulation bei Großen Deformationen. Chemnitz Scientific Computing Preprints, CSC/07-02, pages 1–8, 2007.

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