11th World Congress on Computational Mechanics (WCCM XI)
5th European Conference on Computational Mechanics (ECCM V)
6th European Conference on Computational Fluid Dynamics (ECFD VI)
July 20–25, 2014, Barcelona, Spain

ISOGEOMETRIC ANALYSIS OF GRADIENT ELASTIC KIRCHHOFF PLATES

Jarkko Niiranen* **and Antti H. Niemi**

Aalto University, School of Engineering, Department of Civil and Structural Engineering, PO Box 12100, FI-00076 AALTO, Finland, jarkko.niiranen@aalto.fi, antti.h.niemi@aalto.fi

Key words: *Plate Structures, Gradient Elasticity, Isogeometric Analysis, Finite Elements*

In the present contribution, isogeometric methods [1] are used to analyse a problem of Kirchhoff micro-plate formulation based on strain gradient elasticity [2]. The aim of the generalized theories of elasticity is to provide length scale parameters that take into account the effect of microstructure of the material on its mechanical behaviour.

In particular, the current model includes one length scale parameter resulting in a sixth order partial differential equation instead of the biharmonic fourth order partial differential equation of the classical Kirchhoff plate theory, see [3]. Computational results include different boundary conditions and the results are compared with analytical solutions or other reference solutions.

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