Accepted Manuscript

Isogeometric analysis for nonlinear planar Kirchhoff rods: Weighted residual formulation and collocation of the strong form

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PII: S0045-7825(18)30270-6
DOI: https://doi.org/10.1016/j.cma.2018.05.025
Reference: CMA 11926

To appear in: *Comput. Methods Appl. Mech. Engrg.*

Received date : 26 January 2018
Revised date : 15 May 2018
Accepted date : 21 May 2018

Please cite this article as: F. Maurin, F. Greco, S. Dedoncker, W. Desmet, Isogeometric analysis for nonlinear planar Kirchhoff rods: Weighted residual formulation and collocation of the strong form, *Comput. Methods Appl. Mech. Engrg.* (2018), https://doi.org/10.1016/j.cma.2018.05.025

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- NURBS-based isogeometric rotation-free nonlinear planar Kirchhoff rods are tackled.
- The weighted residual formulation and collocation of the strong form are investigated.
- Reduced Gauss--Lobatto quadrature, Greville and superconvergent points are employed.
- Convergence-order estimates for fourth-order PDEs are provided based on observations.
- The MIP Newton method greatly improves the convergence robustness.