Title:
Computational wear and contact modeling for fretting analysis with isogeometric dual mortar methods

Abstract:
A finite element framework based on dual mortar methods is presented for simulating fretting wear effects in the finite deformation regime. The mortar finite element discretization is realized with Lagrangean shape functions and isogeometric elements based on non-uniform rational B-splines (NURBS) in two and three dimensions. Fretting wear effects are modeled in an incremental scheme with the help of Archard’s law and the worn material is considered as additional contribution to the gap function. Numerical examples demonstrate the robustness and accuracy of the presented algorithm.

Keywords:
Fretting wear, Friction, Dual mortar methods, Isogeometric analysis

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