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and Virtual Element Viewpoints -- 4 Linear Elasticity and Hyperelasticity -- 4.1 Continuum Mechanics -- 4.1.1 Infinitesimal Deformations and Linear Elasticity -- 4.1.2 Finite Deformations and Hyperelasticity -- 4.2 HHO Methods for Linear Elasticity -- 4.2.1 Discrete Unknowns, Reconstruction, and Stabilization -- 4.2.2 Discrete Problem, Energy Minimization, and Traction Recovery -- 4.2.3 Stability and Error Analysis -- 4.3 HHO Methods for Hyperelasticity -- 4.3.1 The Stabilized HHO Method -- 4.3.2 The Unstabilized HHO Method -- 4.3.3 Nonlinear Solver and Static Condensation -- 4.4 Numerical Examples -- 5 Elastodynamics -- 5.1 Second-Order Formulation in Time -- 5.1.1 HHO Space Semi-discretization -- 5.1.2 Time Discretization -- 5.2 First-Order Formulation in Time -- 5.2.1 HHO Space Semi-discretization. -- 5.2.2 Time Discretization -- 5.3 Numerical Example -- 6 Contact and Friction -- 6.1 Model Problem -- 6.2 HHO-Nitsche Method -- 6.2.1 FEM-Nitsche Method -- 6.2.2 Discrete Setting for HHO-Nitsche -- 6.2.3 Stability and Error Analysis -- 6.3 Numerical Example -- 7 Plasticity -- 7.1 Plasticity Model -- 7.1.1 Kinematics and Additive Decomposition -- 7.1.2 Helmholtz Free Energy and Yield Function -- 7.1.3 Plasticity Problem in Incremental Form -- 7.2 HHO Discretizations -- 7.2.1 Discrete Unknowns -- 7.2.2 Discrete Plasticity Problem in Incremental Form -- 7.2.3 Nonlinear Solver -- 7.3 Numerical Examples -- 7.3.1 Torsion of a Square-Section Bar -- 7.3.2 Hydraulic Pump Under Internal Forces -- 8 Implementation Aspects -- 8.1 Polynomial Spaces -- 8.2 Algebraic Representation of the HHO Space -- 8.3 L2-Orthogonal Projections -- 8.3.1 Quadratures -- 8.3.2 Reduction Operator -- 8.4 Algebraic Realization of the Local HHO Operators -- 8.4.1 Local Reconstruction Operator -- 8.4.2 The Stabilization Operator -- 8.5 Assembly and Boundary Conditions -- 8.6 Remarks on the Computational Cost of HHO Methods -- Appendix References.

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