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Nomenclature

σ	Stress
σ_y	Yield stress
ε	Total strain
ε_e	Elastic strain
ε_p	Plastic strain
$\dot{\varepsilon}$	Plastic strain rate
$\hat{D}_{\text{int}}$	Plastic dissipation per unit of volume
M_p	Plastic moment
h	height
b	width
l^e	Element legth
e_p	Plastic extension
D_{int}	Plastic dissipation
θ	Rotation
W_{ext}	External work
$\hat{W}_{ext}$	Unitary external work (per unit of load multiplier)
$\mathbf{b}$	Volume loads vector
$\mathbf{t}$	Surface loads vector
$\mathbf{F}$	Point loads vector
$\mathbf{v}$	Nodal displacements vector
$\mathbf{f}$	External loads vector
$\hat{\mathbf{f}}$	Unitary external loads vector
μ	Load multiplier
$\mathbf{d}$	Deformation tensor
$\dot{\bar{\boldsymbol{\varepsilon}}}(\mathbf{d})$	Equivalent strain rate given by Lubliner (1990)
$\mathbf{d}'$	Deformation deviator tensor
$\mathbf{u}$	Collapse mechanism
X	Space of motions compatible with boundary conditions
$\underline{X}$	Reduced space of X
X_H	Solution space when we consider a mesh the body studied
$\underline{X}_H$	Reduced space of X_H
X_h	Reference mesh
$\underline{X}_h$	Reduced space of X_h
$\hat{X}_h$	Broken space
$\hat{\underline{X}}_h$	Reduced spate of $\hat{X}_h$
$\hat{\mathbf{u}}_{\mathbf{h}}$	Collapse mechanism in the reduce space $\hat{\underline{X}}_h$
$\mathbf{q}$	Edge forces vector
$\mathbf{p_H}$	Particular choice of $\mathbf{q}$
$\underline{Z}_h^e$	Reduced space of one macroelement

$\hat{\mathbf{u}}_h^e$	Collapse mechanism of one reduced space of one macroelement
g	Gap
g^e	Gap of one element
η^e	Contributions of one element to the gap
$v(x)$	Displacement normal to the bar
$u(x)$	Displacement longitudinal to the bar
(v_i, θ_i)	Degrees of freedom of node i
N_i	Shape function i
$\mathbf{N}$	Shape functions vector
$\mathbf{B}$	Second derivation respect x of $\mathbf{N}$
$\hat{\mathbf{F}}_i^j$	External nodal loads
$\mathbf{k}^e$	Stiffness matrix of one element
$\mathbf{v}^e$	Nodal degrees of freedom of one element
$\mathbf{K}$	Stiffness matrix of the structure
C_i	Gauss-Legendre factors
ξ_i	Gauss-Legendre points
t	Tolerance
t_v	Tolerance respect $\mathbf{v}$
t_u	Tolerance respect $\mathbf{u}$
e_v	Relative error related to $\mathbf{v}$
e_u	Relative error related to $\mathbf{u}$
$\mathbf{T}$	Internal loads vector
$\mathbf{u}_R$	Rigid body displacement vector
(u_i, v_i, θ_i)	Degrees of freedom when we consider contribution of normal forces
$\mathbf{N}_u$	Shape functions vector associated with $\mathbf{u}$
$\mathbf{N}_v$	Shape functions vector associated with $\mathbf{v}$
$\mathbf{B}_u$	Second derivation respect x of $\mathbf{N}_u$
$\mathbf{B}_v$	Second derivation respect x of $\mathbf{N}_v$
y_i	Coordinate integration point
e_i	Plastic extension for $y = y_i$