crystallite_integrateStress LpLoop

NiterationStress $=$ NiterationStress $+$ 1

NiterationStress $>$ nStress

.true. | .false.

TOO MANY ITERATIONS: return | ∅

B $=$ math_i3 $-$ crystallite_subdt(g,i,e)$*$Lpguess
Tstar_v $=$ 0.5 $*$ C $*$ (B^T $*$ A $*$ B $-$ math_I3)
p_hydro $=$ sum(Tstar_v(1:3))/3.0
forall (i$=$1:3) Tstar_v(i) $=$ Tstar_v(i) $-$ p_hydro

[Lp_constitutive, dLp_constitutive] $=$ constitutive_LpAndItsTangent (Tstar_v, crystallite_Temperature)

residuum $=$ Lpguess $-$ Lp_constitutive

no NaN ocuured in residuum
.and. (residuum below absolute tolerance .or. (above relevant strain .and. residuum below relative tolerance))

.true. | .false.

LOOP CONVERGED: exit LpLoop | ∅

NaN occured in residuum .and. leapfrog $==$ 1.0

.true. | .false.

NO CONVERGENCE: return |

leapfrog $>$ 1.0
.and. (worse residuum .or. residuum changed sign .or. NaN occured)

.true. | .false.

maxleap $=$ 0.5 $*$ leapfrog
leapfrog $=$ 1.0
jacoCounter $=$ 0
Lpguess $=$ Lpguess_old
residuum $=$ residuum_old

|

mod(jacoCounter,iJacoLpresiduum) $==$ 0

.true. | .false.

dTdLp $=$ $-$ 0.5 $*$ crystallite_subdt $*$ C $*$ (A$*$B $+$ B^T$*$A)
dRdLp $=$ math_identity2nd(9) $-$ dLp_constitutive $*$ dTdLp

[invdRdLp,dummy,error] $=$ math_invert(9,dRdLp)

error

.true. | .false.

INVERSION FAILED: return | ∅

| ∅

jacoCounter $=$ jacoCounter $+$ 1
residuum_old $=$ residuum
Lpguess_old $=$ Lpguess

NiterationStress $>$ 1 .and. leapfrog $<$ maxleap

.true. | .false.

leapfrog $=$ 2.0 $*$ leapfrog | ∅

Lpguess $=$ Lpguess $-$ leapfrog $*$ invdRdLp $*$ residuum