Convexity conditions for a bounding surface model with directional distortional hardening

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ABSTRACT

New models featuring directional distortional changes of the shape of yield surface in stress space based on original ideas published in papers [1] and [2] were evaluated in terms of thermodynamic consistency and yield surface convexity. A series of assumptions concerning the distribution of free energy among internal mechanisms was thoroughly tested, closely following the energy fluxes in special cases of non-proportional loading trajectories. Sufficient conditions of convexity were projected into the calibration requirements of these new models.

REFERENCES

[1] H. P. Feigenbaum, Y. F. Dafalias, "Directional distortional hardening in metal plasticity within thermodynamics, *International Journal of Solids and Structures*, 44(22-23), 7526-7542, (2007).

[2] H. P. Feigenbaum, Y. F. Dafalias, "Simple model for directional distortional hardening in metal plasticity within thermodynamics, *Journal of Engineering Mechanics*, 134(9), 730-738, (2008).

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