A model for multiaxial ratcheting employing directional distortional hardening

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ABSTRACT

Several simulations of multiaxial ratcheting using models featuring directional distortion of the yield surface in stress space showed deep inconsistencies with experimental data [1]. Since then, an updated yield function and new internal evolution laws have been created to address particular behavioural patterns found throughout literature concerning cross effect, distortion intensity and its orientation. These features have been subjected to numerical calibration in order to evaluate their respective contributions. Simulations of the experimental ratcheting data from [2] with this new model give a deeper understanding of this model and how ratcheting predictions are effected by yield surface distortion.

Difficulties with numerical implementation, strategy for the calibration procedure and search for admissible limits on parameters will be described.

REFERENCES

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