

ELASTOPLASTICITY AND VISCOPLASTICITY

YUKI YAMAKAWA^{*}, KOICHI HASHIGUCHI[†]

^{*} Department of Civil and Environmental Engineering, Tohoku University
6-6-06, Aramaki-aza-Aoba, Aoba-ku, Sendai, 980-8579, Japan
yuki.yamakawa.c7@tohoku.ac.jp

[†] Solids & Struct. Anal. Solutions, Ltd., Japan (Emeritus Prof. Kyushu University)
6-13-1003, Kuromon, Chuo-ku, Fukuoka, 810-0055-0054, Japan
hashikoi87@gmail.com

ABSTRACT

Various plasticity models, e.g. Mróz (multi-surface) model, Dafalias (two-surface) model, Chaboche (superposed kinematic hardening) model, Hashiguchi (subloading surface) model and their various modifications have been proposed to describe the monotonic and cyclic loading behavior of various materials, e.g., metals, soils, rocks, concrete, etc., during the last half century as reviewed in the references [1], [2], etc. Further, various viscoplastic models based on the creep (Norton-Odqvist) model and the overstress (Bingham-Prager-Perzyna) model have been proposed. Some of these models are standard-installed into the commercial FEM software, e.g., Abaqus, Marc, ANSYS, LS-DYNA, etc., and used widely for the mechanical design in industry. This session invites the presentations of the modified or new plastic and viscoplastic models, computer implementation techniques of advanced constitutive models, numerical simulations of test data by these models and their applications to the analyses of various boundary value problems. Their merits, demerits and further development will be discussed in detail for the sound and steady development of the plasticity and viscoplasticity theories and of the engineering practice.

REFERENCES

- [1] Chaboche, J. L. (2008): A review of some plasticity and viscoplasticity constitutive theories, *Int. J. Plasticity*, **24**, 1642-1693.
- [2] Hashiguchi, K. (2022): *Elastoplasticity Theory*, Fourth edition, Lecture Note in Appl. Compt. Mech., Springer-Verlag, Heidelberg.

COMPLAS is the largest international conference on plasticity. Many well-known scholars on plasticity will participate in the conference.

Most of the world-renowned scientists in the field of plasticity and viscoplasticity will come together in order to enjoy the hot discussions on these topics.

Deadline for submission of a one-page abstract: **1 March, 2025**