XVIII International Conference on Computational Plasticity, COMPLAS 2025
September 2-5, 2025, Barcelona, Spain

CONTINUUM THERMODYNAMICS AND ITS APPLICATION TO THE MODELING OF INELASTIC ENGINEERING MATERIALS AND PROCESSES

A MINISYMPOSIUM IN HONOR OF BOB SVENDSEN ON THE OCCASION OF HIS RETIREMENT

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ABSTRACT

In organizing this minisymposium, we would like to celebrate the retirement of Bob Svendsen as professor at the RWTH Aachen University, acknowledge his scientific achievements and thank him for his contributions to the field.

After obtaining his doctoral degree in geophysics and applied physics at the California Institute of Technology in 1987, Bob spent two years as a postdoc at the ETH Zürich working in the areas of mixture theory and ice mechanics with applications in glaciology. This was followed by research positions at the Technical University Darmstadt, Germany, and at the Federal Institute für Material Research and Testing (BAM) in Berlin. During this phase of his career, he became increasingly interested in continuum thermodynamics and its application to material modeling. In 2000, he obtained a professorship in Engineering Mechanics at TU Dortmund, where he stayed for 10 years. In collaboration with a number of friends, colleagues and students during this time, he applied continuum thermodynamics, material theory and rate-variational methods in a number of publications to the development of multiscale models for inelastic single- and polycrystalline engineering materials. Many of these models were also successfully applied to the simulation of engineering and production processes. With his move to the RWTH Aachen University in 2010 and his affiliation with the Max-Planck-Institute for Sustainable Materials starting in 2011, his research interests shifted again, now in the direction of material science, statistical mechanics and thermodynamics, phase-field methods, multiphysics, as well as continuum and discrete modeling and simulation at nanoscopic and atomistic scales.

In addition to his scientific contributions, Bob has had a tremendously positive impact on the scientific careers of a large number of doctoral students and postdocs including ourselves. It is our great pleasure to invite friends, students, scientific collaborators and all other colleagues who have enjoyed scientific discussions and interaction with Bob over the years on different occasions to submit a talk to this minisymposium and celebrate with us.