

Research activities 2019

Ppapers:

- 1) Y. Suzuki (2020) A GENERIC formalism for Korteweg-type fluids: I. A comparison with classical theory, *Fluid Dyn. Res.* 52, 015516.
- 2) Y. Suzuki (2020) A GENERIC formalism for Korteweg-type fluids: II. Higher-order models and relation to microforces, *Fluid Dyn. Res.*, in press.

Presentations:

- 1) Yukihiro Suzuki, On GENERIC formalisms for complex fluids, RIMS Workshop on Mathematical Analysis in Fluid and Gas Dynamics, July 5, 2019, Kyoto.
- 2) Yukihiro Suzuki, A GENERIC formalism for complex fluids with Cattaneo heat flux, Waseda Workshop on Partial Differential Equations 2019, December 17, 2019, Tokyo.

Results:

The development of structure preserving numerical methods for two-phase flows with phase-transition was pursued. We formulate thermodynamically consistent models for complex fluids with and without the Cattaneo heat flux model, using General Equation for the Non-Equilibrium Reversible-Irreversible Coupling (GENERIC) which is a framework of non-equilibrium thermodynamics.