

Nonconservative Discontinuous Galerkin Discretization and Application to the Navier-Stokes-Korteweg System.

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We consider the Navier-Stokes-Korteweg equations for the simulation of liquid-vapour flows on the micro-scale. This system belongs to the class of diffuse interface models and has divergence form. However, it turned out that the discretization of certain terms in nonconservative form has several advantages, especially at static equilibrium configurations.

One aspect of this talk is the Discontinuous Galerkin formulation of the higher order derivatives and non-conservative terms, as they appear in the Navier-Stokes-Korteweg System.

The other aspect of this talk is the discussion about the realistic temperature range and length scale for simulations using this model without modification of the physical parameters.