Modelling and numerical simulation of hydrogen flow in networks

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In this talk fluid flow problems in networks are considered. The focus is on the simulation of metal hydride storage systems integrated into a hydrogen network for energy supply. First, the general modelling approach for flow simulation in networks is introduced. Suitable semi-discretization in space by WENO methods leads to large DAE systems. Simple problems are used as examples to discuss some numerical difficulties.
The simulation of large networks requires robust and efficient integrators for DAEs. Nunmerical investigations with different methods are presented.