Free boundary problems for the dynamic of fluids with a focus on the Verigin problem

The first part of this talk provides a brief introduction to
the topic of free boundary problems in fluid mechanics. In the second
part, we discuss the existence and uniqueness of strong solutions to the
Verigin problem, a two-phase model for the dynamics of two compressible
fluids. The last part of this talk is concerned with a stability
analysis of the solutions to the Verigin problem.