

# Free Boundary Problems arising in Fluid Dynamics

Elena Salguero (MPI-MiS Leipzig)

**Abstract:**

Free boundary problems play a central role in modeling physical phenomena such as multiphase flows and the evolution of fluid patches. Examples include the motion of droplets, oil recovery processes, and the dynamics of vortex patches. In this talk, we will discuss mathematical models that describe interface evolution, with particular emphasis on the properties of the free boundary, such as its regularity, stability, and the potential formation of singularities.