Structure-preserving front-tracking methods for the two-phase Navier-Stokes flow

(Dr. Quan Zhao, University of Regensburg)

In this talk, I will consider the structure-preserving front-tracking methods for a sharp-interface model of two-phase flow in both the unfitted and fitted mesh approaches. Here the ``structure-preserving '' means that the volume preservation and energy decay are satisfied on the discrete level as well. In the unfitted approach, the constructed method is based on an Eulerian weak formulation, while in the fitted approach, the method is in the arbitrary Lagrangian-Eulerian (ALE) framework. We compare the numerical results of the two approaches by using the example of a rising bubble.