1172-35-254 **Andrea Giorgini\*** (`a.giorgini@imperial.ac.uk`), London, United Kingdom. *Well-posedness of the Abels-Garcke-Grün model for two-phase flows.*

In the last decades, the Diffuse Interface-Phase Field theory has made enormous progresses in the description of multi-phase flows from modeling to numerical analysis. A particularly active research topic has been the development of thermodynamically consistent extensions of the well-known Model H for the case of unmatched (homogeneous) densities of the fluids. In this talk, I will focus on the AGG model proposed by H. Abels, H. Garcke and G. Grün in 2012. The model consists of a Navier-Stokes-Cahn-Hilliard system characterized by a concentration-dependent density and an additional flux term due to interface diffusion. Furthermore, the sharp interface limit of the AGG model corresponds to the two-phase Navier-Stokes equations. In the literature, the analysis of the AGG system has so far been focused on the existence of weak solutions. During the seminar, I will present some recent results concerning the existence, uniqueness and stability of strong solutions for the AGG model in two dimensions. (Received August 30, 2021)