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Coupling thermocapillary and solutocapillary stress in 2D microfoam drainage MARIE-CAROLINE JULLIEN, VINCENT MIRALLES, ESPCI/CNRS, EMMANUELLE RIO, LPS-Orsay, ISABELLE CANTAT, IPR-Rennes, ESPCI/CNRS TEAM, LPS/ORSAY TEAM, IPR-RENNES TEAM — The foam drainage dynamics is known to be strongly affected by the nature of the surfactants stabilising the liquid/gas interface. In the present work, we consider a 2D microfoam stabilized by both soluble (sodium dodecylsulfate) and insoluble (dodecanol) surfactants. The drainage dynamics is driven by a thermocapillary Marangoni stress at the liquid/gas interface [V. Miralles et al., Phys. Rev. Lett., 2014] and the presence of dodecanol at the interface induces a solutocapillary stress acting against the applied thermocapillary stress, hence slowing down the drainage dynamics. We define a dimensionless permeability of the 2D foam in order to get insight into the relative contributions of the two surface stresses at play. We propose different surfactant transport scenarios.

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