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Foam Drainage on the Microscale

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Although foam drainage occurs on the microscale, i.e. the level of individual channels and nodes, most experiments have been performed on the macroscopic scale at the level of many bubbles. Various different mean-field models have been developed which differ in their assumptions of the fluid flow on the microscale, which until recently could not be verified. Novel foam drainage experiments on the scale of individual channels are presented, which confirm the model of Leonard and Lemlich, that the surface viscosity sets the interfacial mobility. Analytical solutions for the flow rates through the channels are given, which are a key ingredient for developing a complete macroscopic description of foam drainage.

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