

A thin film Muskat problem: existence and large time behaviour

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**Abstract**

A thin film model describing the dynamics of the heights of two immiscible fluids with different densities and viscosities is studied. On the one hand, existence of weak solutions is derived from a gradient flow structure which also provides information on the large time behaviour. On the other hand, self-similar solutions are classified in space dimension 1 and 2 and their role in the long term dynamics investigated. Joint works with Bogdan-Vasile Matioc (Regensburg)