

Min-max theory for capillary surfaces

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Abstract

Capillary surfaces model interfaces between incompressible immiscible fluids. The Euler-Lagrange equations for the capillary energy functional reveals that such surfaces are solutions of the prescribed mean curvature equation, with prescribed contact angle where the interface meets the container of the fluids. Min-max methods have been used with great success to construct unstable critical points of various energy functionals, particularly for the special case of closed minimal surfaces. We will discuss the development of min-max methods to construct general capillary surfaces.