# Geometry and Patterns of the Mean Curvature Equation

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## Abstract

The mean-curvature equation provides a condition for a graph of a surface to have a prescribed mean curvature. Solutions for constant mean curvature include surfaces such the unduloid and nodoid which appear in liquid bridges (liquid sustained by surface tension between two plates). Methods of contact geometry yield solutions to this equation, and analogies to the Cross-Newell equation which governs pattern formation far from threshold provide a pattern-formation interpretation of the geometry of surfaces of prescribed mean curvature. This is work together with Nick Ercolani.