“Vertical Blow-Ups and Applications to Capillarity.”

Abstract:

The equation that describes the surface of a liquid standing in a capillary tube or container is a prescribed mean curvature equation which shares a lot of features with minimal surfaces. If the container has a corner, the key to understanding the solution to this equation is a very careful examination of the behavior of the unit normal on approach to that corner through various directions. One can use a certain blow-up procedure in which the similarities to the minimal surface equation are magnified. In the limit, the surface tips to vertical, separating the domain or cross-section into two regions. We were able to enumerate exactly which subsets were realized as such limits, in both the case of a convex corner and that of a non-convex corner. I will discuss these results and some applications to capillarity.

Friday, October 3, 2008
3:00 PM in 372 Jabara Hall

Please come join us for refreshments before the lecture at 2:30 p.m. in room 353 Jabara Hall.