



LIQUID DROPS, SOAP BUBBLES AND SURFACES WITH CONSTANT MEAN CURVATURE

RAFAEL LÓPEZ

Departamento de Geometría y Topología. Universidad de Granada, 18071 Spain

Abstract. This is a review of the theory of compact surfaces with constant mean curvature with special attention on surfaces with non empty boundary. We analyze the relation between the geometry of the boundary curve with the one of the surface that spans. This will allow to give a mathematical support to describe the geometry of liquid drops and soap bubbles.

MSC: 53A10

Keywords: Dirichlet problem, mean curvature, soap bubble, tangency principle

CONTENTS

1. Liquid Drops and Mean Curvature	14
2. CMC Surfaces: A Historical Introduction.....	17
3. Minimal Surfaces Bounded by Two Circles	21
4. The Tangency Principle for CMC Surfaces.....	26
5. The Alexandrov Theorem	31
6. CMC Surfaces with Planar Boundary	38
7. The Flux Formula and Consequences	41
8. The Dirichlet Problem for the CMC Equation	47
Acknowledgements	52
References	52