

Abstract

Variational Problems Involving Surface Curvatures

We will discuss the variational theory of surfaces which are in equilibrium for an energy which depends quadratically on the curvature. The emphasis will be on developing the geometric and computational tools necessary to approach problems in this area.

Topics that will be discussed are:

1. Willmore surfaces
2. Boundary value problems.
3. Relation with Lorentzian geometry via the conformal group.
4. Anisotropic surface energies
5. Variational theory with multiple constraints.