

ATELIER SUR LES EDP GÉOMÉTRIQUES
23-27 AVRIL, 2012

WORKSHOP ON GEOMETRIC PDE
APRIL 23-27, 2012

An eigenvalue problem and minimal surfaces in the ball

Ailana Fraser^{*}

afraser@math.ubc.ca

Beginning with the work of J. Hersch for the two sphere and that of P. Li and S. T. Yau for more general surfaces, the question of determining surfaces of fixed area which maximize the first eigenvalue has been actively studied. In this talk we will describe recent work with R. Schoen concerning extremal eigenvalue questions for surfaces with boundary. In both cases the eigenvalue problems are related to minimal surface questions. For closed surfaces these are minimal surfaces in spheres while for surfaces with boundary they are related to minimal surfaces in the ball satisfying a natural boundary condition. We will describe some conjectures and results on determining optimal surfaces.

^{*}Department of Mathematics, University of British Columbia, 121 - 1984 Mathematics Road, Vancouver, BC V6T 1Z2, CANADA.