AILANA FRASER, University of British Columbia
Free boundary minimal surfaces in rectangular prisms

In this talk we will describe recent work using eigenvalue optimization to construct free boundary minimal surfaces in products of Euclidean balls. We will briefly outline the general theory and apply it in a specific case to explain and generalize the Schwarz P-surface, which is a free boundary minimal surface in the three dimensional cube with one boundary component on each face of the cube. We will show how the method can be used to construct such surfaces in rectangular prisms with arbitrary side lengths. We will also show that when the side lengths are not all the same, there are at least two minimal surfaces of the type of the Schwarz P-surface and both are embedded.