

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF MATHEMATICS

**Geometric Analysis Seminar**

Wednesday, September 21, 2022

**4:00 PM - 5:00 PM**      **2-131**

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**“Equivariant min-max theory to construct free boundary minimal surfaces in the unit ball”**

**Abstract**

A free boundary minimal surface (FBMS) in the three-dimensional Euclidean unit ball is a critical point of the area functional with respect to variations that constrain its boundary to the boundary of the ball (i.e., the unit sphere). A very natural question is whether there are FBMS in the unit ball of any given topological type.

In this talk, we will present the construction of a family of FBMS with connected boundary and arbitrary genus, via an equivariant version of Almgren-Pitts min-max theory à la Simon-Smith. We will see how this method allows us to control the topology of the resulting surface and also to obtain information on its index.