1163-35-350 **Seongmin Jeon**, **Arshak Petrosyan** and **Mariana Smit Vega Garcia***
(mariana.smitvegagarcia@wwu.edu). *Almost minimizers for obstacle problems.*

In the applied sciences one is often confronted with free boundaries, which arise when the solution to a problem consists of a pair: a function u (often satisfying a partial differential equation), and a set where this function has a specific behavior. Two central issues in the study of free boundary problems and related problems in the calculus of variations and geometric measure theory are: (1) What is the optimal regularity of the solution u? (2) How smooth is the free boundary (or how smooth is a certain set related to u)? The study of the classical obstacle problem - one of the most renowned free boundary problems - began in the '60s with the pioneering works of G. Stampacchia, H. Lewy, and J. L. Lions. During the past decades, it has led to beautiful developments, and its study still presents very interesting and challenging questions. In contrast to the classical obstacle problem, which arises from a minimization problem (as many other PDEs do), minimizing problems with noise lead to the notion of almost minimizers. In this talk, I will introduce obstacle type problems and overview recent developments in almost minimizers for the thin obstacle problem, illustrating techniques that can be used to tackle questions (1) and (2) in various settings. (Received September 03, 2020)