Monday's Nonstandard Seminar 19

14:00

Author: Yumi Cho (Seoul National University)

Title: **The self–improving property of higher integrability in the obstacle problem for the porous medium equation**

Abstract: In this talk, we study the self–improving property of obstacle problems related to porous medium type equations. We restrict our attention to the case $m > 1$ of the so-called slow diffusion. In this case, the equation is degenerate in the sense that the modulus of ellipticity vanishes as $u \to 0$. We also cover the case of signed solutions. We then establish local higher integrability for the spatial gradient of a weak solution to our problem under integrability assumptions of the given obstacle function and the given inhomogeneities.

This talk is based on a joint work with Christoph Scheven (Universität Duisburg-Essen).