

## The obstacle problem for the porous medium equation

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In this talk we consider the obstacle problem associated to the porous medium equation

$$\partial_t u - \Delta u^m = 0, \quad m > \frac{(n-2)_+}{n}.$$

We prove the existence of weak solutions under natural assumptions on the obstacle. In particular, we do not assume that the obstacle is continuous, bounded or decreasing in time. In the proof, we are working with a new local concept of solution that allows to examine local properties like regularity.

This is joint work with Teemu Lukkari (Jyväskylä) and Christoph Scheven (Duisburg-Essen).