Monday's Nonstandard Seminar 37

15:00

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Title: **Hölder continuity for a doubly nonlinear equation**

Abstract: The prototype of the PDEs considered in this talk is
$$\partial_t\big(|u|^{q-1}u\big) - \operatorname{div}\big(|Du|^{p-2}Du\big) = 0 \quad \text{in } E_T = E \times (0, T]$$
with parameters $q \in (0, \infty)$ and $p \in (1, \infty)$. Here, $E \subset \mathbb{R}^N$ denotes an open set and $0 < T < \infty$. This doubly nonlinear equation generalizes the porous medium equation (case $p = 2$), the parabolic p-Laplace equation (case $q = 1$) and Trudinger's equation (case $q = p - 1$). We present Hölder continuity results for possibly sign-changing weak solutions to equations of this type in the parameter range $p > 2$ and $q < p - 1$.

The talk is based on joint work with Verena Bögelein, Frank Duzaar and Naian Liao.