Higher integrability for sub-critical porous medium type systems

Verena Bögelein, Salzburg

We report on recent results concerning the local higher integrability for the spatial gradient of weak solutions to sub-critical porous medium systems of the type

$$\partial_t u - \operatorname{div}\left(|Du|^{m-1}Du\right) = \operatorname{div} F, \qquad 0 < m < \frac{(N-2)_+}{N+2}.$$

The proof is based on intrinsic scaling and sup-estimates that can be achieved under a certain integrability assumption on the solution.

The results are obtained in joint work with Frank Duzaar (Salzburg), Naian Liao (Salzburg) and Ugo Gianazza (Pavia)