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Fakultät für Mathematik

Mathematisches Kolloquium

EINLADUNG

Verena Bögelein
(Universität Salzburg)

"A variational approach to the porous medium equation"

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Abstract:

In this talk we establish an existence theory for the porous medium equation

$\partial_t u^m - \Delta u = 0$, and more generally, for doubly nonlinear evolution equations of the type $\partial_t b(u) - \text{Div}(Df(Du)) = 0$, where f is only assumed to be coercive and convex. Doubly nonlinear equations possess a wide spectrum of applications, for instance in fluid dynamics, soil science and filtration. Our approach is purely variational. We introduce a nonlinear version of the minimizing movement approach that could also be useful for the numerics of doubly nonlinear equations. It is flexible enough to deal also with obstacle problems with low regularity of the obstacle or time dependent boundary data. This is joint work with F. Duzaar (Erlangen), P. Marcellini (Florence), and C. Scheven (Duisburg-Essen).

Zeit: Mittwoch, 15. März 2017
15.45 Uhr Kaffeejause,
16.15 Uhr Vortrag,
vinum cum pane im Anschluss

Ort: Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
Sky Lounge

Otmar Scherzer
Christian Krattenthaler