UNIVERSITÄT SALZBURG

SALZBURG MATHEMATICS COLLOQUIUM
Winter 2019/2020

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„Rate-independent systems in the context of damage and fracture“

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Abstract:
Models describing the damage evolution and failure of brittle materials typically belong to the class of rate-independent systems. Such systems have the property that after rescaling (w.r.to time) the data and solutions in the same way the rescaled solutions solve the rescaled system. In the first part of the lecture we give a short introduction to rate-independent systems. Of particular interest are systems, where certain underlying energies are not convex. In this case solutions might be discontinuous in time even if the given data is smooth in time. There is an active debate about possible (weak) solution concepts that allow for discontinuities. Suitable jump criteria have to be developed that select trajectories with a physically reasonable jump behavior. We will provide an overview of the most popular solution concepts and illustrate them with some examples. In the second part of the lecture we transfer these concepts to damage models and discuss the additional analytic challenges.

Thursday, **15:00-15:45**
Hörsaal 414, 1. Stock

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