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## DK Seminar

May 13, 2015, 14:00 - 15:30  
Vienna University of Technology,  
Freihaus, green area, 4th floor, 101C

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### Cross-diffusion systems without volume filling

In this talk I will give an introduction to cross-diffusion systems, which describe the temporal evolution of densities (or mass fractions) of multi-species systems. They arise in many applications from biology, physics and chemistry like population-dynamics models, models of multi-component gas-mixtures, tumor-growth models or models of ion transport through narrow channels.

Our main focus is on their existence analysis, since to prove global existence of weak solutions for such strongly coupled parabolic systems is very challenging. I will present the systematic method [1] and talk about some recent developments for a special class of systems without volume filling.

#### REFERENCES

- [1] A. Jüngel. The boundedness-by-entropy principle for cross-diffusion systems. Submitted for publication, (2014). [arXiv:1403.5419](https://arxiv.org/abs/1403.5419).