**Taming cross-diffusion systems with entropy methods**

Many applications in physics and biology, like segregation of population species, fluid mixtures, and tumor growth, can be described on the macroscopic level by so-called cross-diffusion systems, which are systems of strongly coupled parabolic equations. Often, the diffusion matrix of these models is neither symmetric nor positive definite, but it becomes positive semidefinite when formulated in terms of entropy variables. Then the entropy formulation reveals a formal gradient-flow structure. This talk introduces to entropy methods used to analyze cross-diffusion systems, including equations with nonstandard degeneracies. Results comprise the global existence of solutions, their boundedness and large-time behavior as well as weak-strong uniqueness. The use of entropy methods is very extensive, also for the design of structure-preserving numerical schemes and to treat stochastic noise terms.