

Derivation of cross-diffusion system: persisting entropy for non-local versions

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In an attempt to derive the SKT cross-diffusion system from a stochastic population model, Fontbona and Méléard stumbled on an intriguing mathematical challenge: is it possible to perform rigorously an asymptotic analysis linking non-local versions of the SKT system to the standard one? After a first partial answer in 2020, a (full) positive answer was given last year, based on an unsuspected persistence of the entropy structure for well-prepared approximations of the system. I will present these results and some related issues concerning the derivation of the SKT system. The main part of the talk will focus on a joint work with Helge Dietert.