Active Crowds

Marie-Therese Wolfram

1. Abstract

In this talk I will discuss the mathematical modelling of active particles (or agents) in crowded environments. We discuss several microscopic models found in literature and the derivation of the respective macroscopic partial differential equations for the particle density. The macroscopic models share common features, such as cross diffusion or degenerate mobilities. We then take the diversity of macroscopic models to a uniform structure and work out potential similarities and differences. Moreover, we discuss boundary effects and possible applications in life and social sciences. This is complemented by numerical simulations that highlight the effects of different boundary conditions. Joint work with M. Bruna, M. Burger and J.F. Pietschmann.