JOHANNES KEPLER UNIVERSITY LINZ

Johannes Kepler University Linz
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NUMA
INSTITUTE OF NUMERICAL MATHEMATICS

Talk announcement

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Kinetic inverse problems: kernel reconstruction from macroscopic data - an application to chemotaxis

In kinetic models, the motion of particles is described by their interactions with the surrounding. For a run-and-tumble chemotaxis model from mathematical biology chemotaxis equation, we are interested in recovering these interactions from macroscopic data: We assume to measure the particle density in space and time and aim to reconstruct the kernel describing an instantaneous change of velocity in the phase space. We shall report on theoretical results regarding this inverse problem. In particular, we will show unique reconstructability of the velocity jump kernel and investigate the macroscopic limit behaviour for the inverse problem. This is joint work with Christian Klingenberg (Würzburg, Germany),Qin Li (Madison, Wisc., USA) and Min Tang (Shanghai, China).