



FLAGSHIP INITIATIVE  
ENGINEERING  
MOLECULAR SYSTEMS

FIELD OF FOCUS 4  
SELF-REGULATION AND REGULATION  
INDIVIDUALS AND SOCIETIES



UNIVERSITÄT  
HEIDELBERG  
ZUKUNFT  
SEIT 1386

# WORKSHOP INVITATION

## REGULATION AND DECISION-MAKING IN COLLECTIVES

Collective phenomena are manifold and determine our daily life in various ways. At first glance, different phenomena such as human collective decision making, human crowd motility, bird and fish swarming, robotics at different size, cell movement in the epithelial layers of skin or gut, wound healing, collectives of bacteria or parasites, the assembly of DNA or proteins in supramolecular complexes or the evolution of order and diffusion in materials do not seem to have much in common. Despite the very different nature of these phenomena, however, comparable structures and patterns may underlie them, which may indicate, fundamental common regularities that are not yet fully understood. In this workshop, we will foster a transdisciplinary approach to address several general questions such as whether there are general concepts that can be identified in collectives all the way from molecules, to cells, to robots to societies?

What can we learn from particular decisions and regulation-patterns that are not in line with our hypotheses and expectations? And does the aggregation level (individual vs. collective perspective) make a difference?

To address these kind of interdisciplinary questions in the context of molecular systems engineering and human decision making the Field of Focus 4 and the Flagship Engineering Molecular Systems are hosting the first workshop on “Regulation and Decision-Making in Collectives”.

We would like to bring together researchers from seemingly very different fields, namely Engineering Molecular Systems, Behavioural and Cultural Studies, Economics and Social Sciences as well as Law to address these questions and to discuss points of contacts as well as potential joint projects.

When: September 13<sup>th</sup> 2021, 3 pm - open

Where: Heidelberg University via Zoom

What: 8 invited talks each 15 min, get to know the research of FoF4 and FI EMS, discussions about point of contacts and potential joint projects

Registration: If you would like to participate in the workshop, please register until August 06th 2021 at [https://zoom.us/meeting/register/tJArcuitqjljGNf\\_XwAWRRv7QU-0V4OpE3BO](https://zoom.us/meeting/register/tJArcuitqjljGNf_XwAWRRv7QU-0V4OpE3BO)

Speaker List:

Prof. Dr. Christine Selhuber-Unkel (IMSE): (Biohybrid) soft robotics.

PD Dr. Falko Ziebert (ITP): Collective motion and decision making in biological systems -



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mathematical models from non-equilibrium physics

Prof. Dr. Friedrich Frischknecht (CID): Collective migration of malaria parasites

Prof. Dr. Joachim Spatz. (MPIImR): Collective Cell Migration

Prof. Dr. Henning Plessner (ISSW): Illusory correlations based on multiple aggregation levels:  
impossible to regulate?

Prof. Dr. Markus Pohlmann (MWI): Corporate Crime and Compliance - Regulation and Decision-  
Making in Collectives

Prof. Dr. Christian Conrad (AWI): Transparent Predictions, Regulation and Decision-Making in  
Economics

Prof. Timo Goeschl, Ph.D. (AWI): Ecological vs. experimental data: Group decision-making and the  
evidence base