

SYNERGETIC APPROACH TO THE DESCRIPTION
OF A STEP-LIKE TRANSITION
BETWEEN THE MOTION REGIMES
OF ACTIVE PARTICLES

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S u m m a r y

A synergetic model has been developed to describe transitions between the motion modes in an ensemble of active particles of the type of biological systems. We show that states of the system are reduced to either the random motion of particles or a translational displacement of the ensemble as a whole, which depends on the excitation level of the system determined by an internal parameter. The phase portraits of the system were used to study a step-like transition between the motion regimes of active particles for various ratios between the characteristic times of hydrodynamic mode variations. The model parameters, which promote the transition of the system into the ordered state, have been analyzed.