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Nota di contenuto	Albi, G., Burger, M., Haskovec, J., Markowich, P., Schlottbom, M., Discrete and Continuum Modeling of Biological Network Formation -- Albi, G., Pareschi, L., Toscani, G., Zanella, M., Recent Advances in Opinion Modeling: Control and Social Influence -- Aydogdu, A., Caponigro, M., McQuade, S., Piccoli, B., Pouradier Duteil, N., Rossi, F., Trélat, E., Interaction Network, State Space, and Control in Social Dynamics -- Benamou, J., Carlier, G., Santambrogio, F., Variational Mean Field Games -- Bongini, M., Fornasier, M., Sparse Control of Multiagent Systems -- Burini, D., Gibelli, L., Outada, N., A Kinetic Theory Approach to the Modeling of Complex Living Systems -- Carrillo, J., Choi, Y., Pérez, S., A Review of Attractive-Repulsive Hydrodynamics for Consensus in Collective Behavior -- Choi, Y., Ha, S., Li, Z., Emergent Dynamics of the Cucker-Smale Flocking Model and its Variants -- Di Francesco, M., Fagioli, S., Rosini, M., Russo, G., Follow-

the-Leader Approximations of Macroscopic Models for Vehicular and Pedestrian Flows -- Jabin, P., Wang, Z., Mean Field Limit for Stochastic Particle Systems.

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## Sommario/riassunto

This volume collects ten surveys on the modeling, simulation, and applications of active particles using methods ranging from mathematical kinetic theory to nonequilibrium statistical mechanics. The contributing authors are leading experts working in this challenging field, and each of their chapters provides a review of the most recent results in their areas and looks ahead to future research directions. The approaches to studying active matter are presented here from many different perspectives, such as individual-based models, evolutionary games, Brownian motion, and continuum theories, as well as various combinations of these. Applications covered include biological network formation and network theory; opinion formation and social systems; control theory of sparse systems; theory and applications of mean field games; population learning; dynamics of flocking systems; vehicular traffic flow; and stochastic particles and mean field approximation. Mathematicians and other members of the scientific community interested in active matter and its many applications will find this volume to be a timely, authoritative, and valuable resource.

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