Emergent Behavior in Self-Organized Dynamics:
from Consensus to Hydrodynamic Flocking

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Abstract: We discuss several first- and second-order models encountered in opinion and flocking dynamics. The models are driven by different rules of engagement, which quantify how each member interacts with its immediate neighbors. We highlight the role of geometric vs.topological neighborhoods and distinguish between local and global interactions, while addressing the two related questions: (i) how local rules of interaction lead, over time, to the emergence of consensus; and (ii) how the flocking behavior of large crowds captured by their hydrodynamic description.

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