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Browning Agents and Active Particles

Collective Dynamics in the Natural and Social Sciences

With a Foreword by J. Doyne Farmer

With 192 Figures and 3 Tables

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1. Introduction

1.1 The Microscopic and Macroscopic View

The emergent properties of social systems cannot be found in their individual components or in the motion of social groups. The components can be found in: "micropatterns, "macroscopic" phenomena, or coherent patterns, corresponding to the motion of social groups. Heuristic arguments between "microscopic" and "macroscopic" phenomena have been presented.

Microscopic

Macroscopic

Fig. 1.1. The emergent generic or macroscopic phenomena from interactions (1) between the components who are subject to the motion of the whole system.

Although, for instance, [121], this is not completely true for instance, for the evolution of social systems, where components who are subject to the motion of the whole system can not be completely separated.

For specific social systems, the role of the microscopic level has not been

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