

COMPLEXITY In CHAOTIC AND STOCHASTIC SYSTEMS

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Some important aspects of the complexity problem in dynamical systems are reviewed [1]. In particular, we emphasize how a characterization of the unpredictability of a system gives a measure of its complexity. Adopting this point of view, we review some developments in the characterization of the predictability of systems showing different kind of complexity: from low-dimensional systems to high-dimensional ones with spatio-temporal chaos and to fully developed turbulence. The problems involved in systems with intrinsic randomness is discussed, with emphasis on the important problems of distinguishing chaos from noise and of modeling the system[2].

[1] G.Boffetta, M. Cencini, M. Falcioni and A. Vulpiani, Physics Reports **356**, 367 (2002).

[2] F. Cecconi, D. del-Castillo-Negrete, M. Falcioni and A. Vulpiani, Physica D **180**, 129 (2003).