

Deterministic Dynamics and Chaos: Epistemology and Interdisciplinary Methodology

Eleonora Catsigeras

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We analyze, from a theoretical viewpoint, the bidirectional interdisciplinary relation between mathematics and psychology, focused on the mathematical theory of deterministic dynamical systems, and in particular, on the theory of chaos. On one hand, there is the direct classic relation: the application of mathematics to psychology. On the other hand, we propose the converse relation which consists in the formulation of new abstract mathematical problems appearing from processes and structures under research of psychology. The bidirectional multidisciplinary relation from-to pure mathematics, largely holds with the "hard" sciences, typically physics and astronomy. But it is rather new, from the social and human sciences, towards pure mathematics.

Subjects: **Chaotic Dynamics (nlin.CD)**; Dynamical Systems (math.DS)

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