Dynamical systems

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Definitions

1. Unidimensional discrete dynamical systems

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Dynamical system

Let:

· M manifold

· T monoid

· $\phi : M \times T \to M$

Then, (M, T, ϕ) is a dynamical system if:

· $\forall\, x \in X$:

$\phi(x, 0) = 0$

$\forall\, t_1, t_2 \in T$:

$\phi(\phi(x, t_1), t_2) = \phi(x, t_1 + t_2)$

Dimension

Let:

· (M, T, ϕ) dynamical system

We name dimension of (M, T, ϕ) to:

· $\dim(M)$

We denote:

· $dim(M) = n$: (M, T, ϕ) n-D dynamical system

Discrete

Let:

· (M, T, ϕ) dynamical system

Then, (M, T, ϕ) is discrete if:

· $T \overset{\subset}{\sim} \mathbb{N}$

Continuous

Let:

· (M, T, ϕ) dynamical system

Then, (M, T, ϕ) is continuous if:

· $T \subset \mathbb{R}$ „ T open

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Propositions

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