<div style="text-align:center">

1.   One-dimensional discrete dynamical systems

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Dynamical system

Let:

   $\cdot\, M$ manifold

   $\cdot\, T$ monoid

   $\cdot\, \phi \,:\, M \times T \to M$

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

   $\cdot\quad \forall\, x \in X$:

   $$\phi(x, 0) = 0$$

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

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

Dimension

Let:

   $\cdot\, (M, T, \phi)$ dynamical system

We name dimension of (M, T, ϕ) to:

   $\cdot\, \dim(M)$

We denote:

   $\cdot\, dim(M) = n \,:\, (M, T, \phi)$ n-D dynamical system

Discrete & Continuous

Let:

$\cdot\ (M, T, \phi)$ dynamical system

Then, (M, T, ϕ) is discrete if:

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

Then, (M, T, ϕ) is continuous if:

$\cdot\ T \subset \mathbb{R}$ „ T open