
Pool models
and attraction

Overview

Who is attracted to X_c?

$X_c(t)$ is the fixpoint of the system frozen at time t.

$$\tilde{\mathrm{X}}' = I_t - M_t \tilde{\mathrm{X}}$$

with constant M_t and I_t obtained when we fix $M(t)$ and $\mathrm{I}(t)$ at the same time when we compute $\mathrm{X}_c(t) = M^{-1}(t)\mathrm{I}(t)$.

Many Forward attractors

unique Pullback attractors

$$\nu(t) := \int_{-\infty}^{t} \Phi(t,u)\mathrm{I}(u)du \quad \text{for all} t \in T$$

$$\lim_{t_0 \to -\infty} dist(\phi(t,t_0,B),\nu(t)) = 0 \quad \text{for all} t \in T$$

Metzler, H., Müller, M., and Sierra, C. (2018). Transit-time and age distributions for nonlinear time-dependent compartmental systems. *Proceedings of the National Academy of Sciences*, 115:201705296.