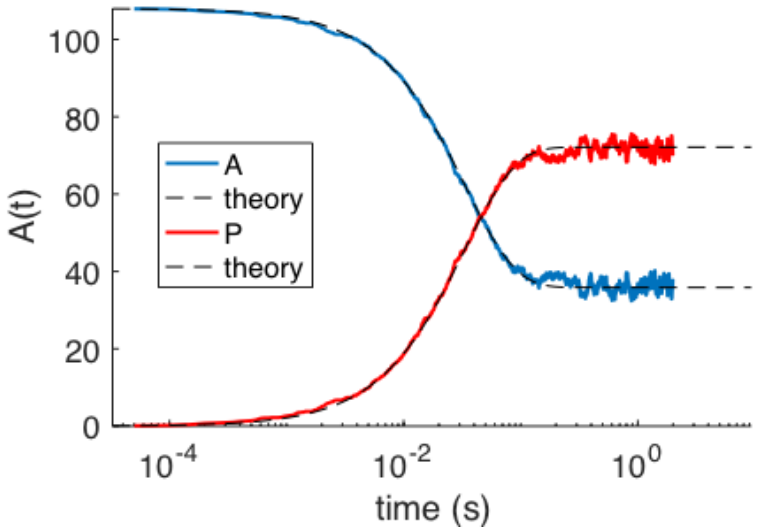
Unimolecular reactions:
A→P k_f=20.12 s^{-1}
P→A k_b=10s^{-1}



copy numbers averaged over 10 NERDSS trajectories.
Δt=0.1 μs. A_0=108. P_0=0.

Analytical solution to $\frac{dA(t)}{dt} = -k_f A(t) + k_b P(t) = -\frac{dP(t)}{dt}$

$$A(t) = \frac{(A_0 + P_0)}{(k_f + k_b)} k_b \left[1 - \exp\left(-t\left(k_f + k_b\right)\right)\right] + A_0 \exp\left(-t\left(k_f + k_b\right)\right).$$

OR

$$A(t) = \frac{k_b A_0 + k_b P_0 + (k_f A_0 - k_b P_0) \exp\left(-t\left(k_f + k_b\right)\right)}{(k_f + k_b)}.$$