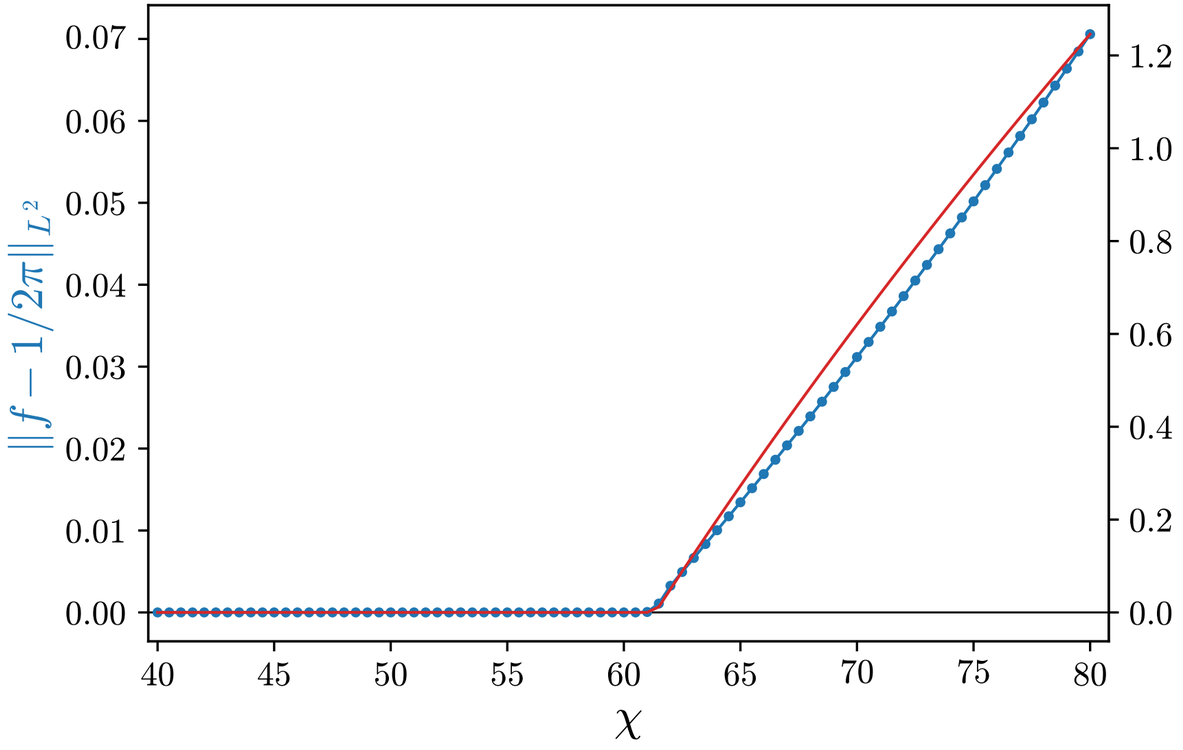
Active ants: dynamics

$$\begin{cases} \partial_t f & = \sigma_x \Delta_x f - \mathrm{Pe} \nabla_x \cdot (v(\theta) f) + \sigma_\theta \partial_\theta^2 f - \chi \partial_\theta (n(\theta) \cdot (\nabla K * \rho + \tau \nabla^2 K * \rho v(\theta)) f) \\ f(t=0) & = f_0 \end{cases}$$

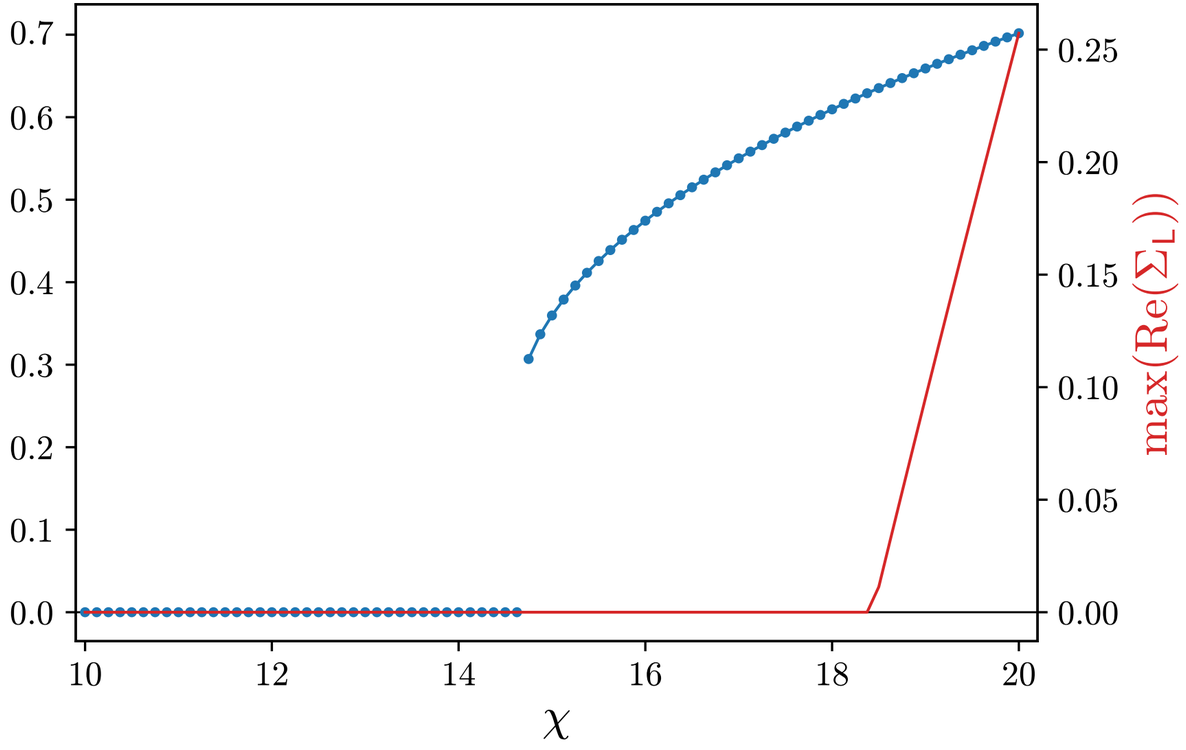
- What happens as $t \to \infty$?

- What is a super- to subcritical transition?

- Existence *at* or *before* loss of local linear stability



$\tau < \tau^*$



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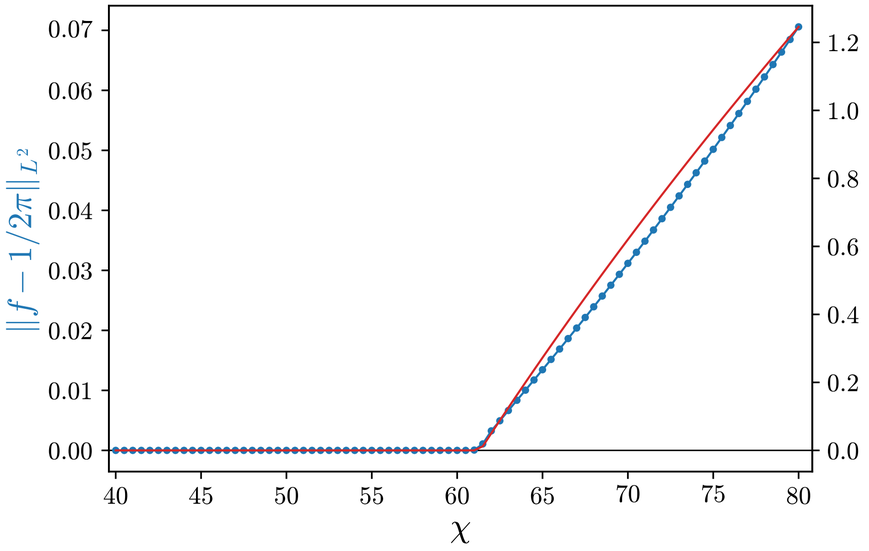
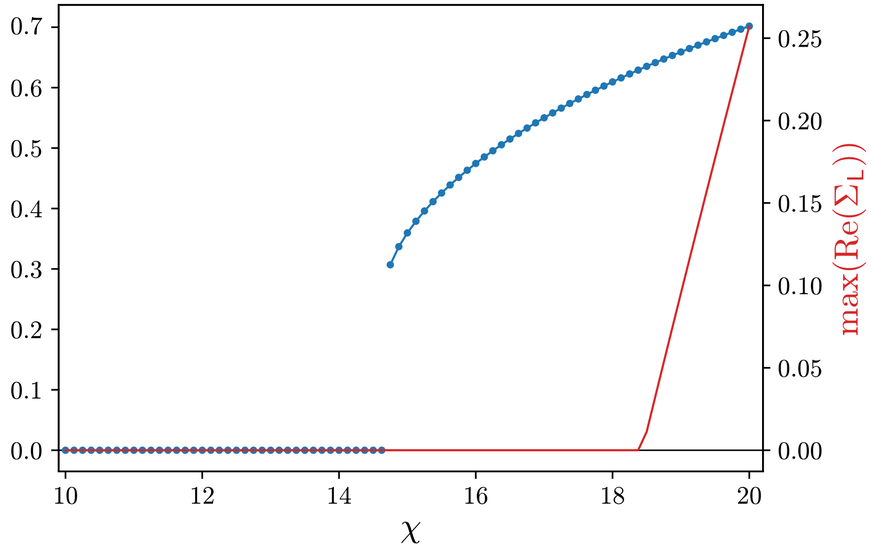


$\tau < \tau^*$



$\tau > \tau^*$

Active ants: metastability? (Open)