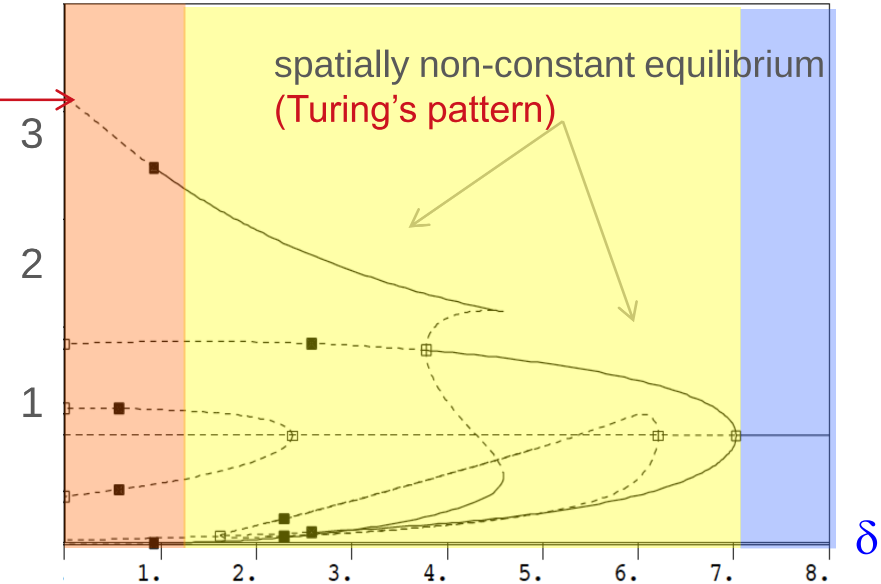
Global solution branch of equilibrium solutions with δ

$$
\begin{cases}
n_t = \{(d + \alpha h(c))n\}_{xx} + \delta(1 - n/K)n & \\
c_t = d_c c_{xx} + an - bc & t > 0,\ 0 < x < L \\
n(0,x) = n_0(x),\ c(0,x) = c_0(x), & 0 < x < L \\
n_x = c_x = 0 & t > 0,\ x = 0, L
\end{cases}
$$

where δ is sufficiently small.



The solution is approximated by the system with $\delta = 0$.

$$
\begin{cases}
n_t = \{(d + \alpha h(c))n\}_{xx} & \\
 & t > 0,\ 0 < x < L \\
c_t = d_c c_{xx} + an - bc & \\
n(0,x) = n_0(x),\ c(0,x) = c_0(x) & ,\ 0 < x < L \\
n_x = c_x = 0 & t > 0,\ x = 0, L \\
\dfrac{d}{dt} M(t) = 0 \longrightarrow M = \dfrac{1}{L}\displaystyle\int_0^L n\, dx = \dfrac{1}{L}\displaystyle\int_0^L n_0\, dx &
\end{cases}
$$