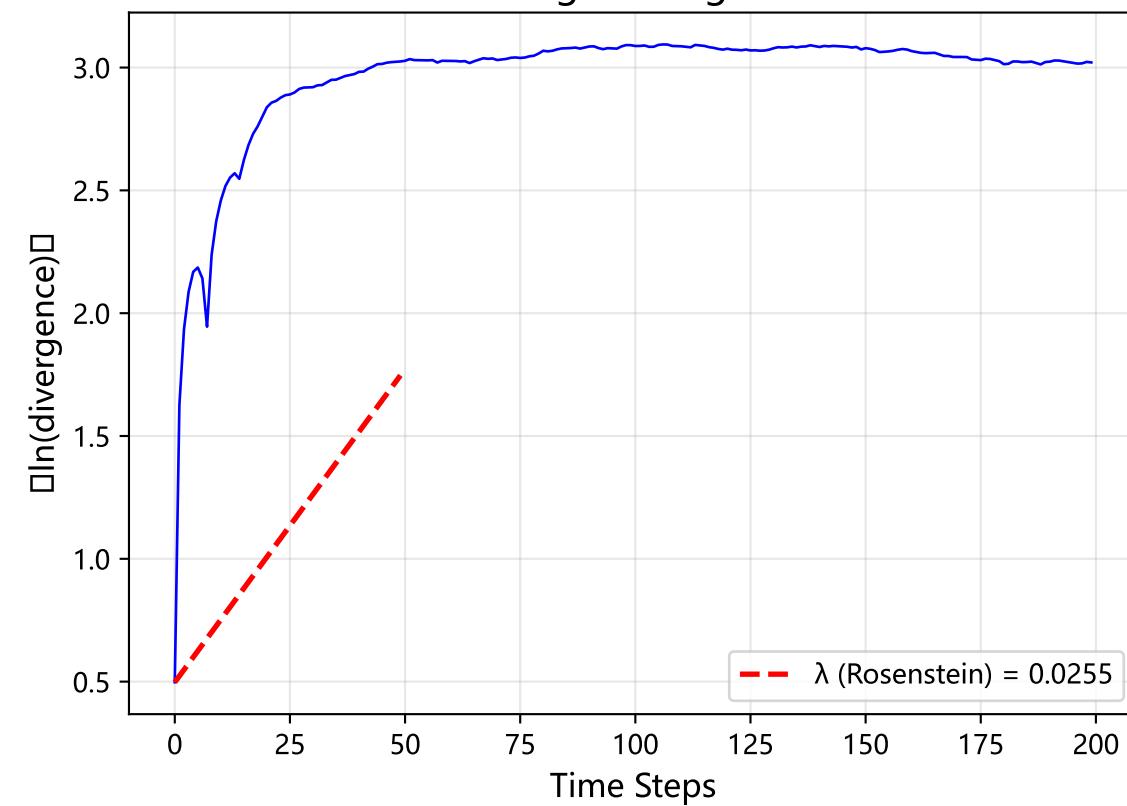
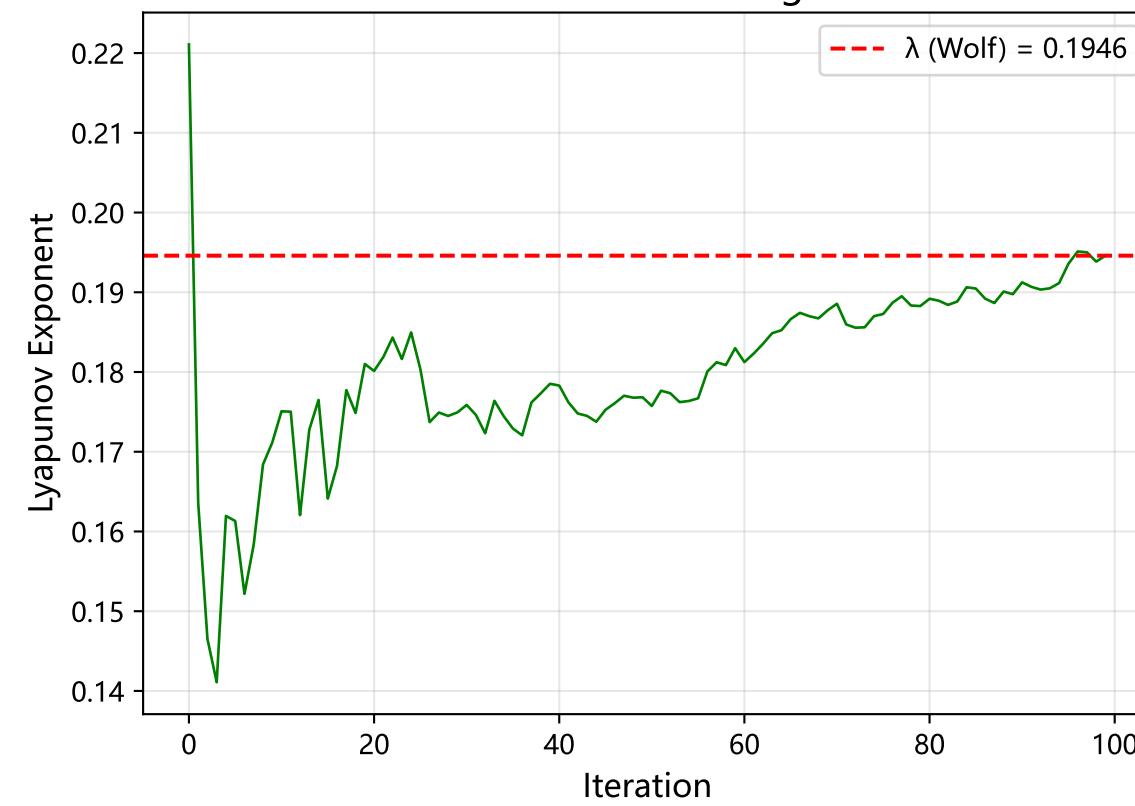


Lyapunov Analysis: Shanghai_PC

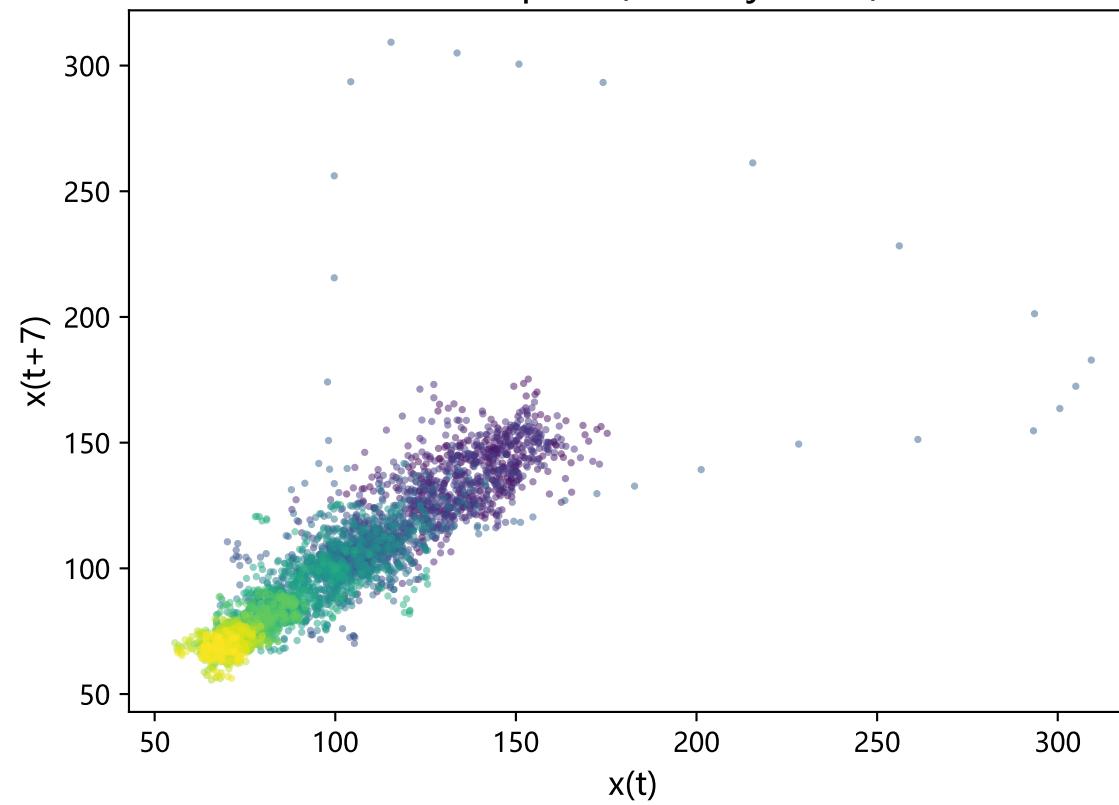
Average Divergence



Wolf Method Convergence



Phase Space (2D Projection)



Lyapunov Exponent Analysis Summary

Rosenstein Method: $\lambda = 0.0255$

Wolf Method: $\lambda = 0.1946$

Interpretation:

- $\lambda > 0$: Chaotic behavior (sensitive to initial conditions)
- $\lambda \approx 0$: Quasi-periodic or at edge of chaos
- $\lambda < 0$: Stable fixed point or periodic orbit

Result: Chaotic

Embedding Parameters:

- Dimension: 3
- Time Delay: 7