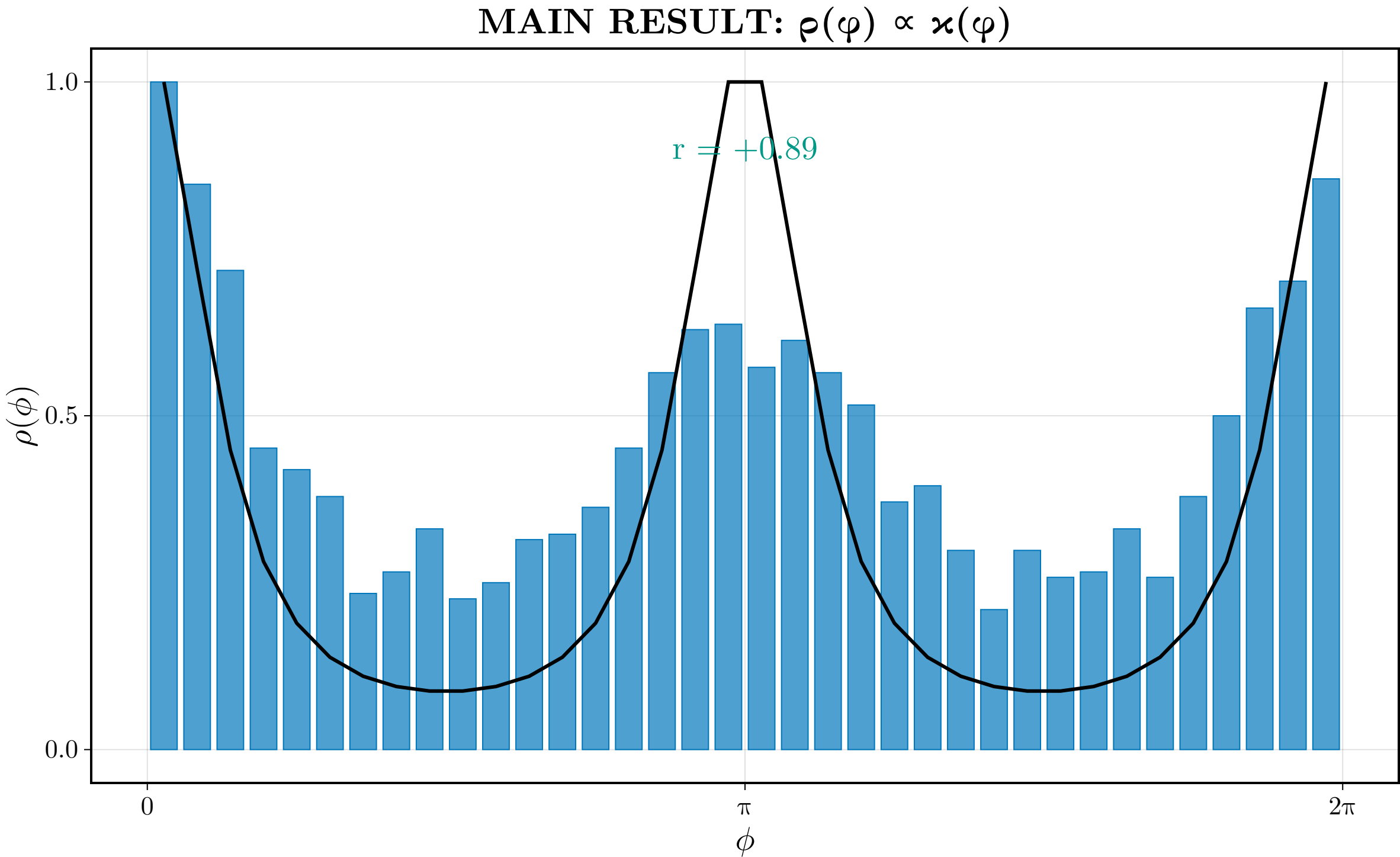
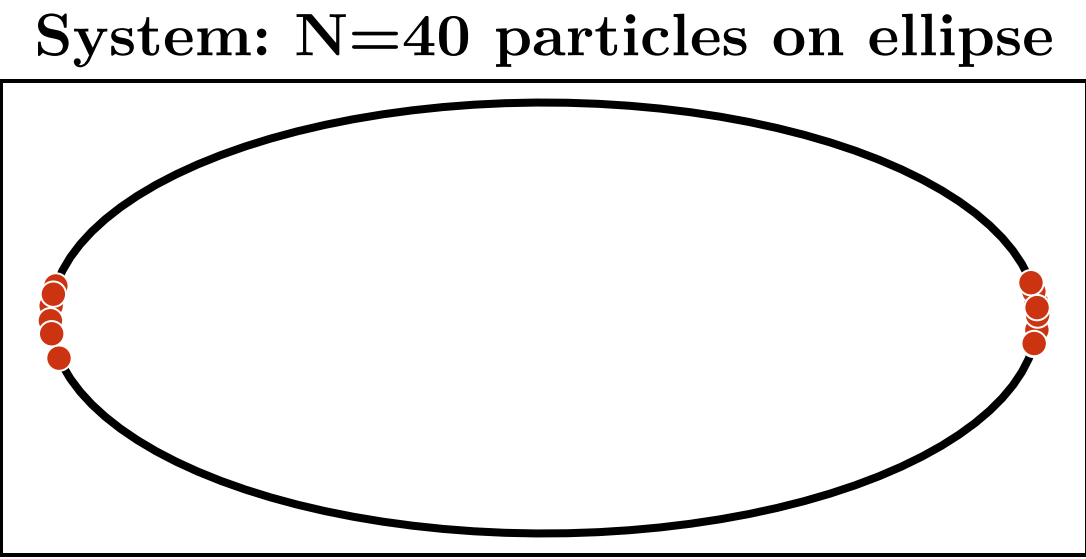


# Curvature-Induced Clustering: A Non-Equilibrium Steady State



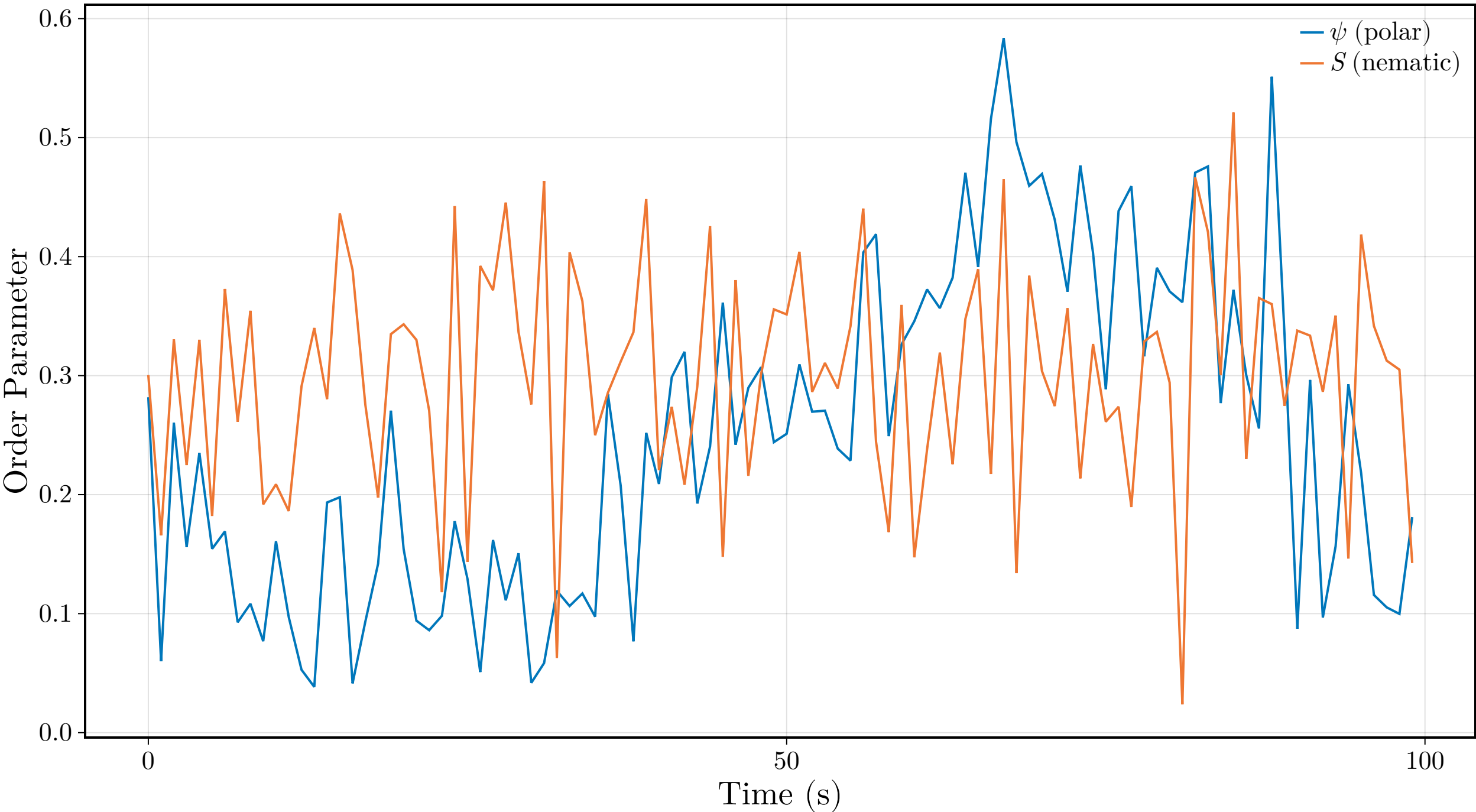
100%

clustering  
at e=0.9

$\tau = 15s$

formation  
time

Two-Cluster Dynamics



Physical Mechanism

1. High curvature  $\rightarrow$  particles slow down
2. Slower particles  $\rightarrow$  more collisions
3. Collisions trap particles locally
4. Clusters form at curvature maxima

Key equation:  
 $\rho(\varphi) \propto \kappa(\varphi)^{2/3}$