# Minimum Free-Energy Path between Two Apposed Membranes and A Stalk

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- The formation of an hourglass-shaped passage (stalk) connecting two apposed membranes is an essential, initial step in membrane fusion.
- The self-consistent field theory (SCFT) is one of the most accurate mean-field theory to calculate the free energy and can be solved numerically
- The SCFT-based string method can be employed to calculate the minimum free-energy paths (MFEPs) in biosystems
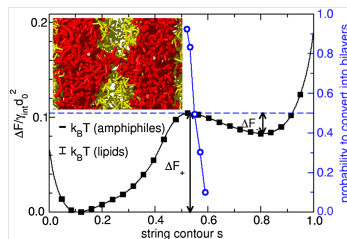
Your Challenges

- Theoretically understanding the SCFT, SCFT-based string method, DSCFT, and how to solve the SCFT reversely
- High-Performance-Computing (HPC) programming (C or Fortran) using MPI and OpenMP

What We Can Offer You

- Insights into the latest topics for the MFEPs in biosystems using particle simulations and string method (cf. Figure)
- Supervision in theoretically understanding the SCFT, SCFT-based string method, DSCFT, and how to solve the SCFT reversely, along with their numerical implementations

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