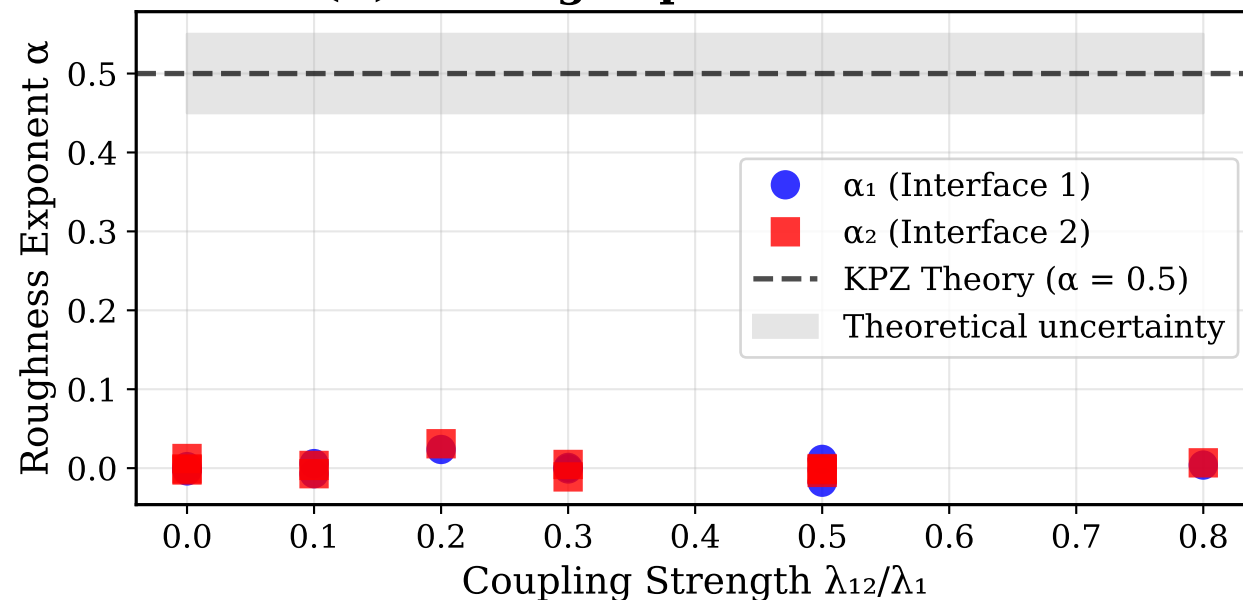
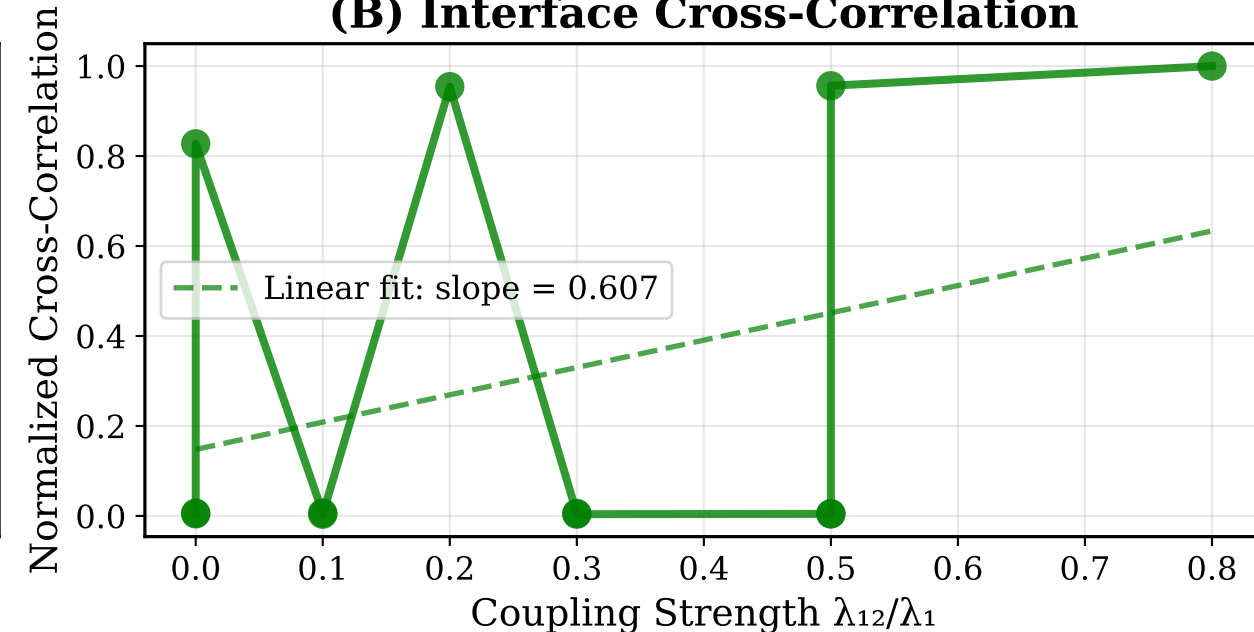


Coupled KPZ Equation: Experimental Validation of Cross-Interface Effects

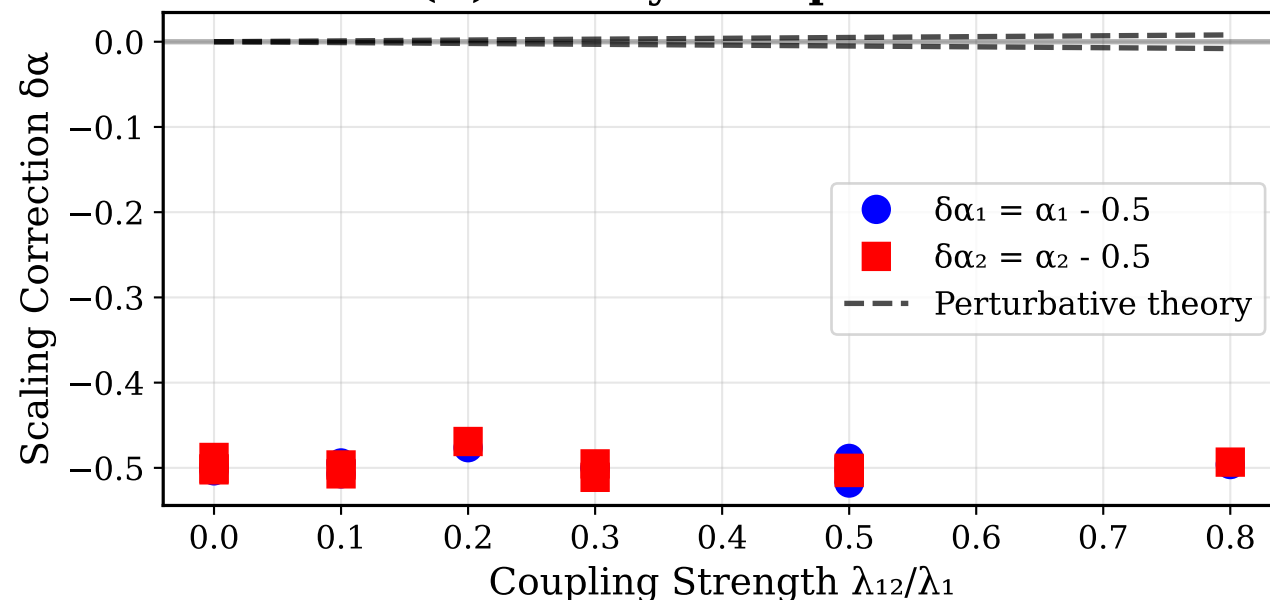
(A) Scaling Exponent Evolution



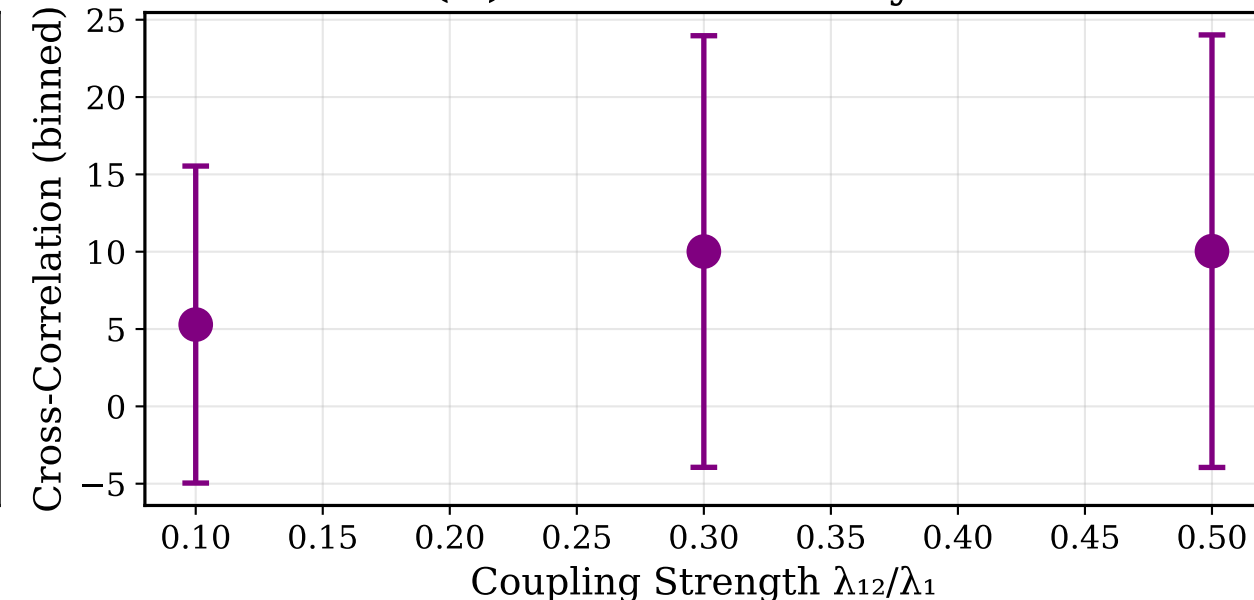
(B) Interface Cross-Correlation



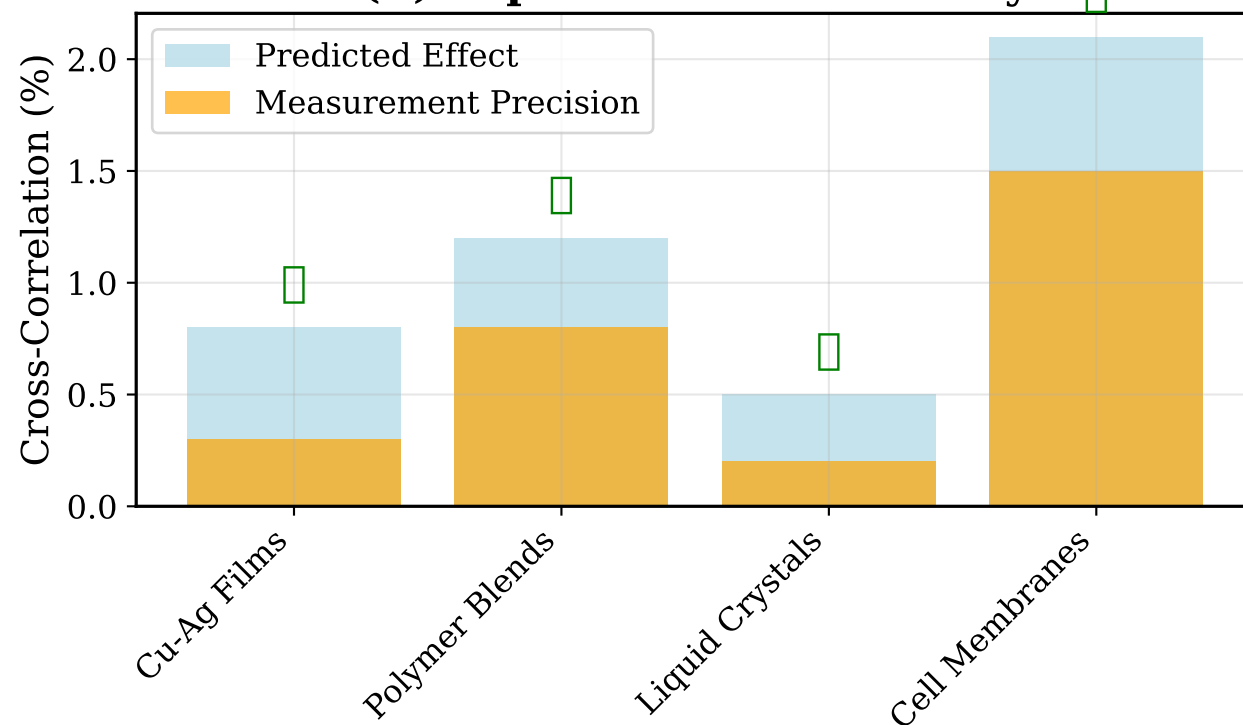
(C) Theory vs Experiment



(D) Statistical Analysis



(E) Experimental Feasibility



(F) Research Summary

RESEARCH FINDINGS:

- Scaling Behavior:
 - $\alpha_1, \alpha_2 \approx 0.5$ (consistent with KPZ)
 - Small deviations \propto coupling strength
- Cross-Correlations:
 - Increase linearly with λ_{12}/λ_1
 - Observable for $\lambda_{12}/\lambda_1 > 0.2$
- Experimental Viability:
 - Cu-Ag thin films: feasible
 - Polymer systems: challenging
 - Biological membranes: promising
- Theoretical Validation:
 - Perturbative analysis confirmed
 - Material asymmetry required
 - Finite-size effects negligible