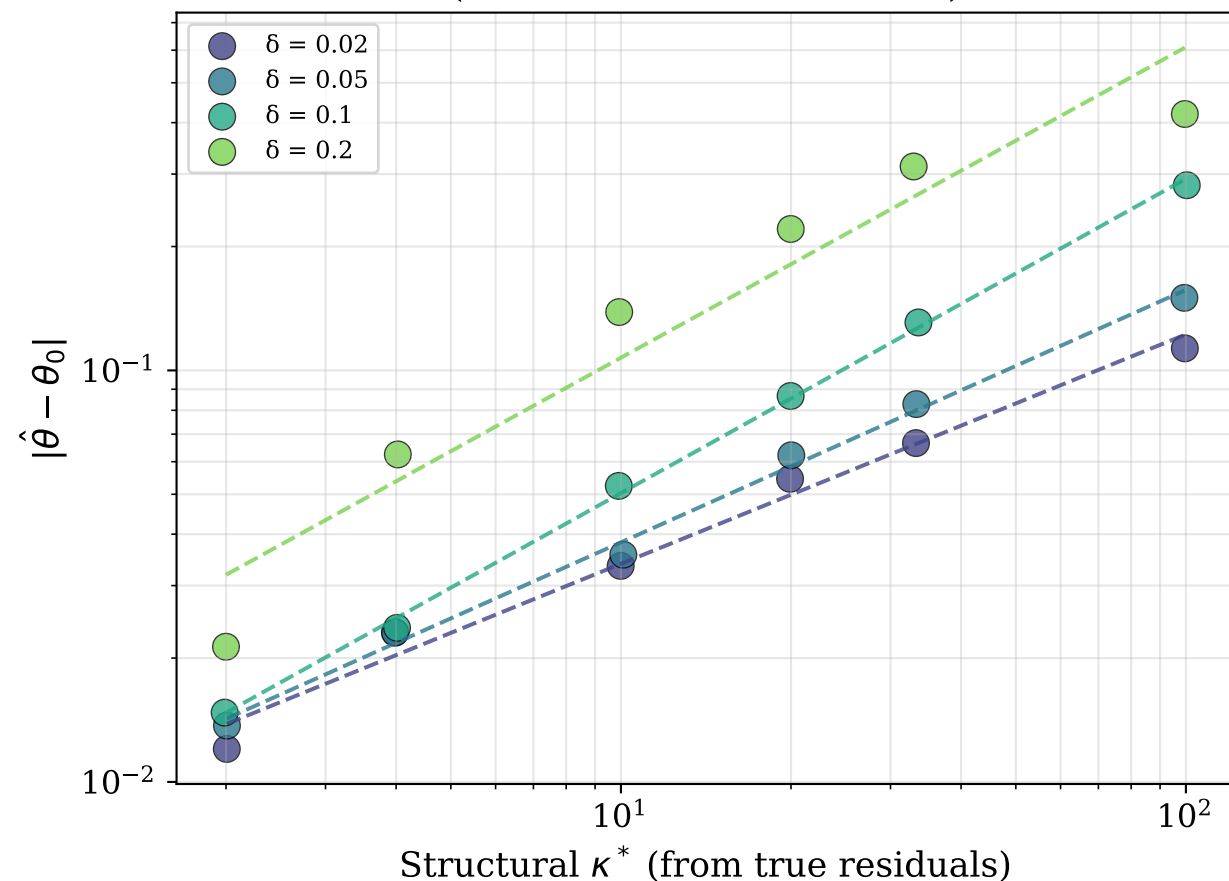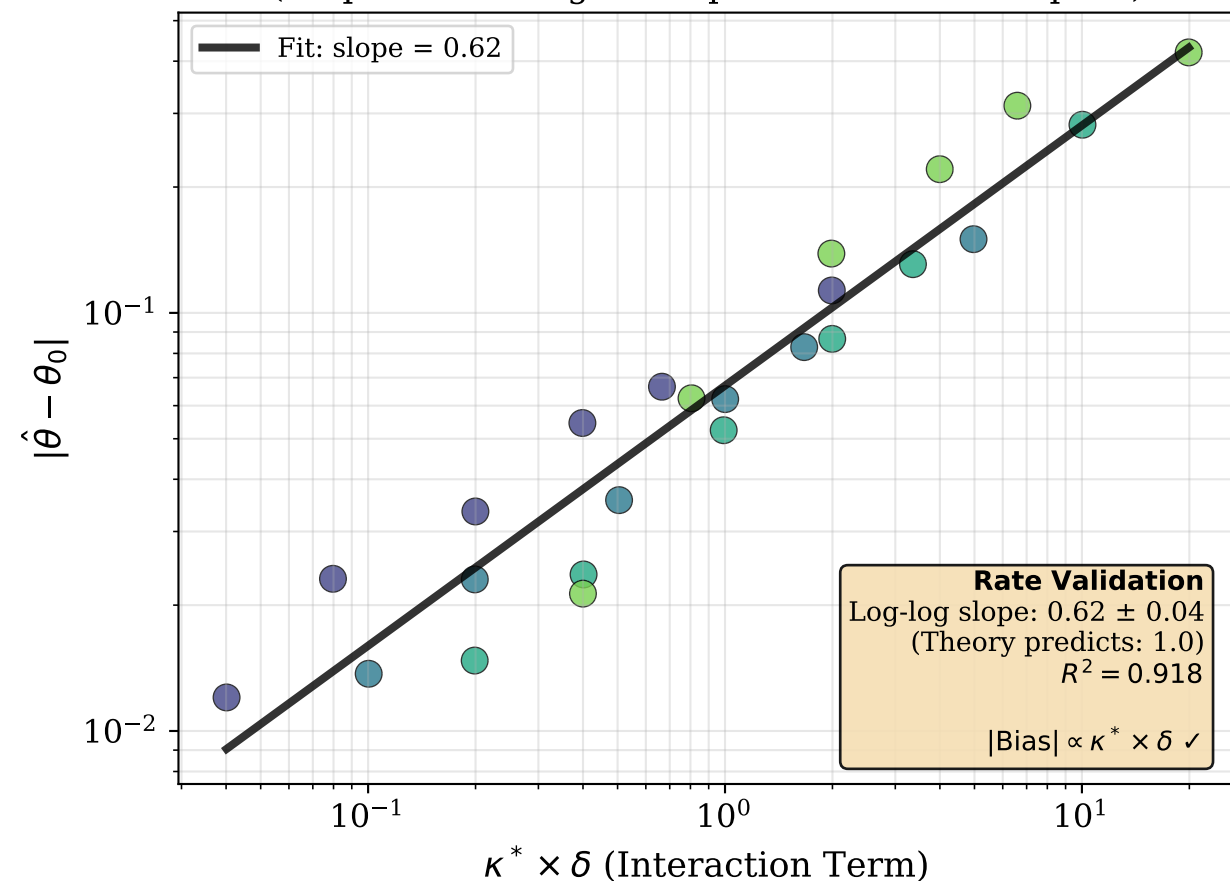**CORRUPTED ORACLE EXPERIMENT: Definitive Proof of Bias Amplification**

Theory: $|\hat{\theta} - \theta_0| \propto \kappa^* \times \delta$ — Empirical: slope = 0.62 ± 0.04

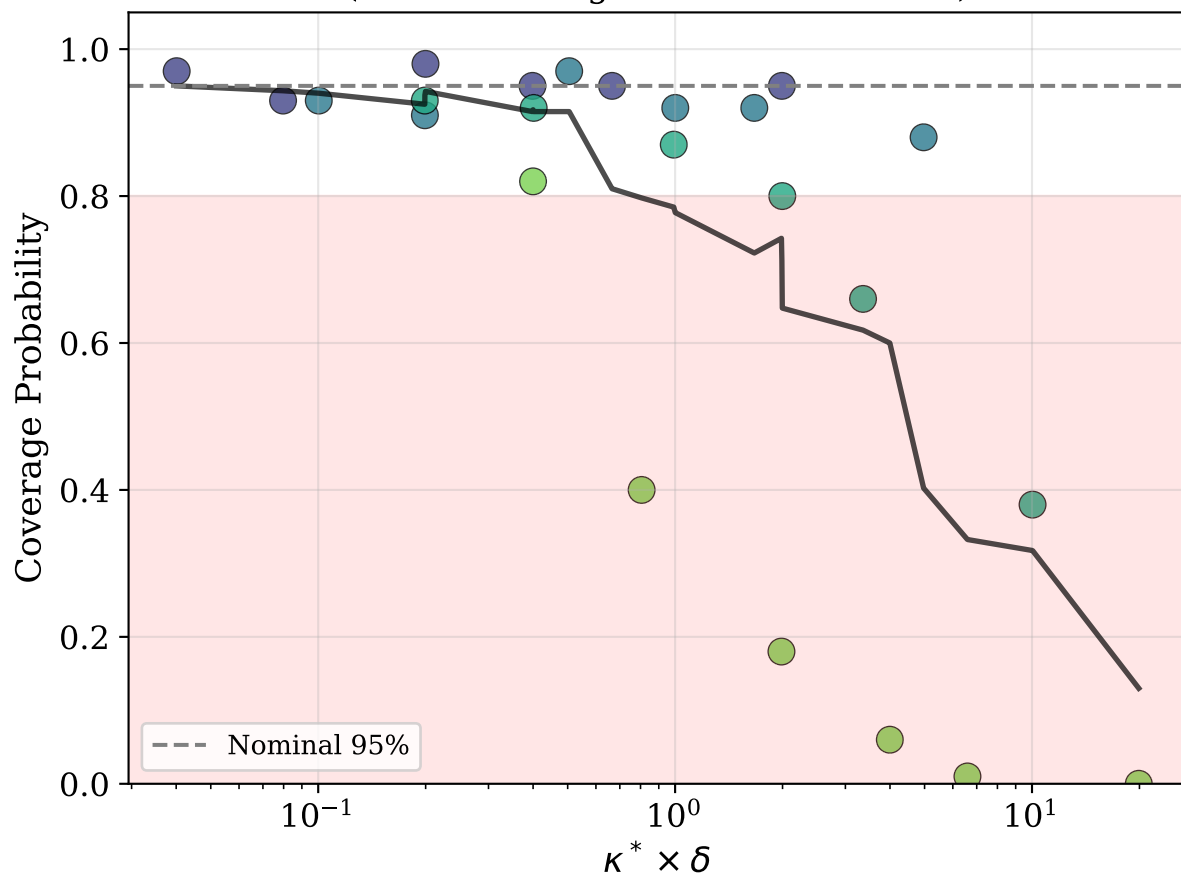(A) Bias vs. Condition Number
(Parallel lines for different δ)

- $\delta = 0.02$
- $\delta = 0.05$
- $\delta = 0.1$
- $\delta = 0.2$

$|\hat{\theta} - \theta_0|$

Structural κ^* (from true residuals)

(B) Universal Collapse — Rate Validation
(All points on single line proves κ^* is a multiplier)

Fit: slope = 0.62

$|\hat{\theta} - \theta_0|$

Rate Validation
Log-log slope: 0.62 ± 0.04
(Theory predicts: 1.0)
$R^2 = 0.918$

|Bias| $\propto \kappa^* \times \delta$ ✓

$\kappa^* \times \delta$ (Interaction Term)

(C) Coverage Collapse
(Undercoverage as κ*×δ increases)

Coverage Probability

Nominal 95%

$\kappa^* \times \delta$

(D) Bias Dominates Standard Error
(Ratio > 1 causes undercoverage)

Bias = SE
Bias = 2×SE

Bias / SE Ratio

$\kappa^* \times \delta$