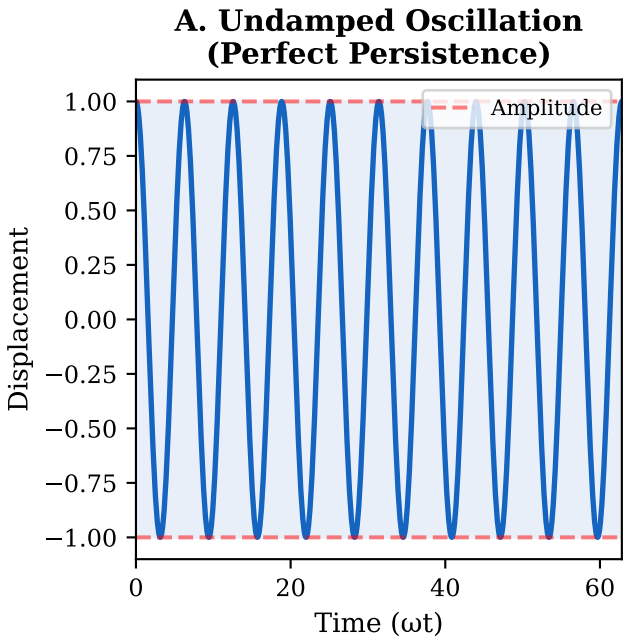
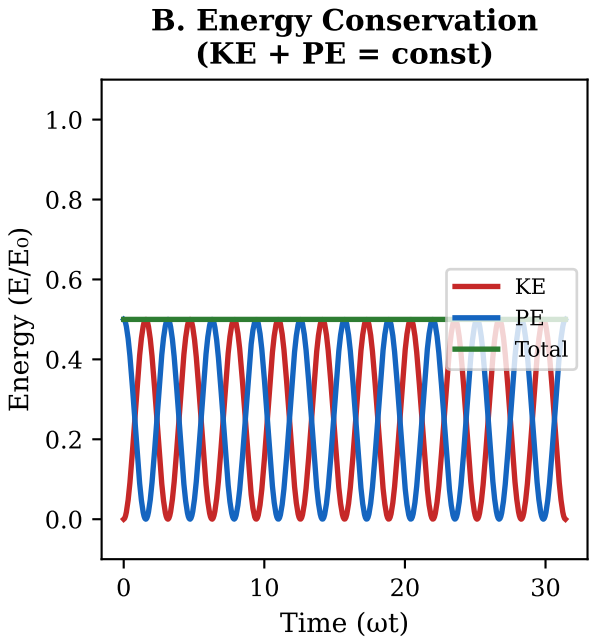
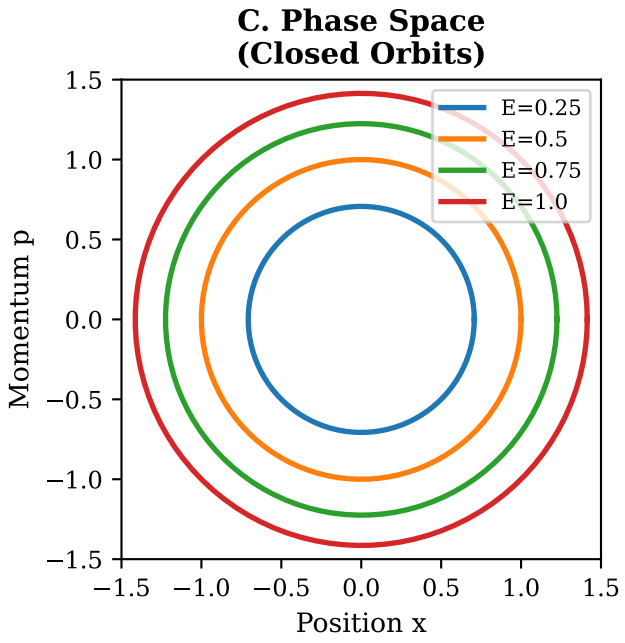
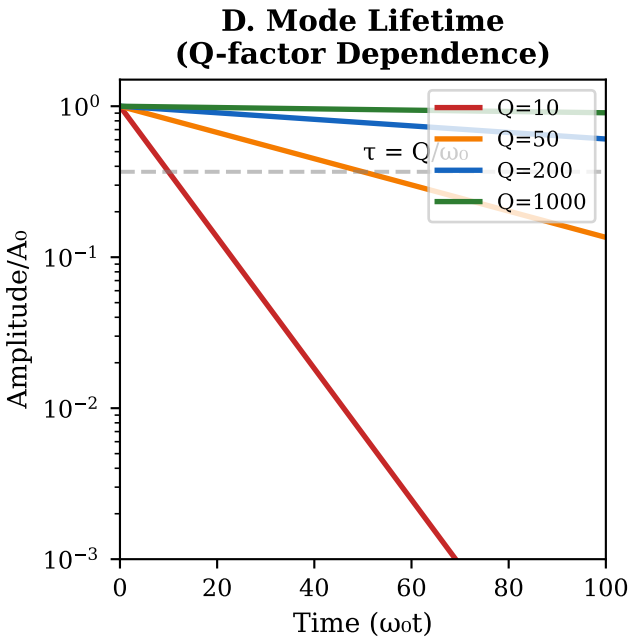
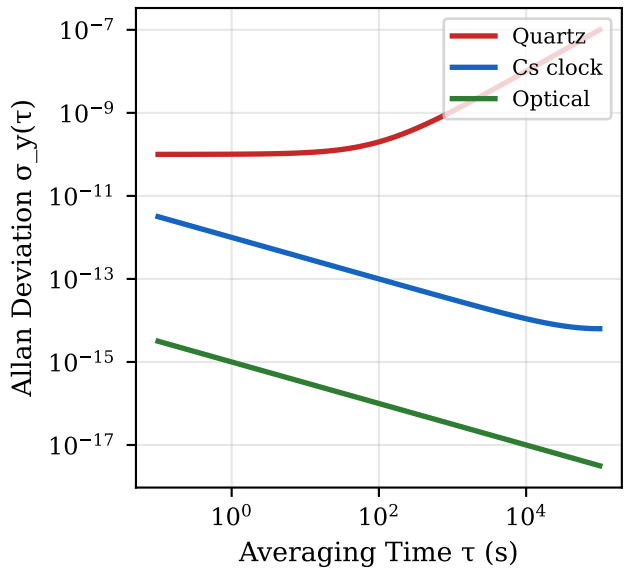
Panel 4: Oscillatory Persistence and Energy Conservation

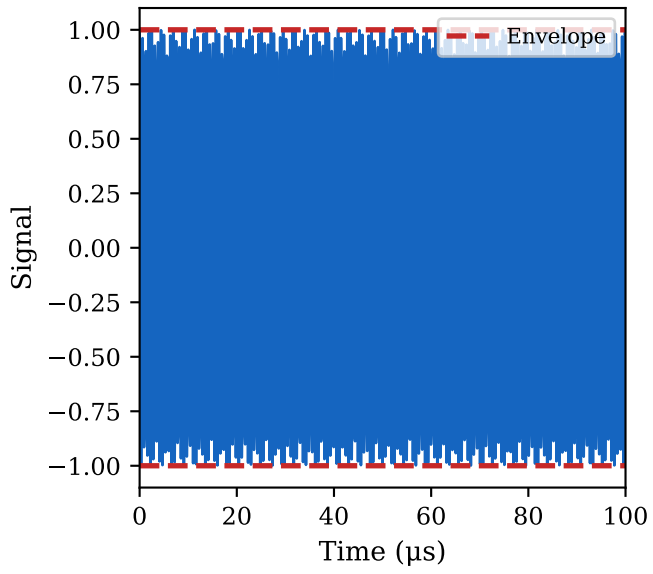


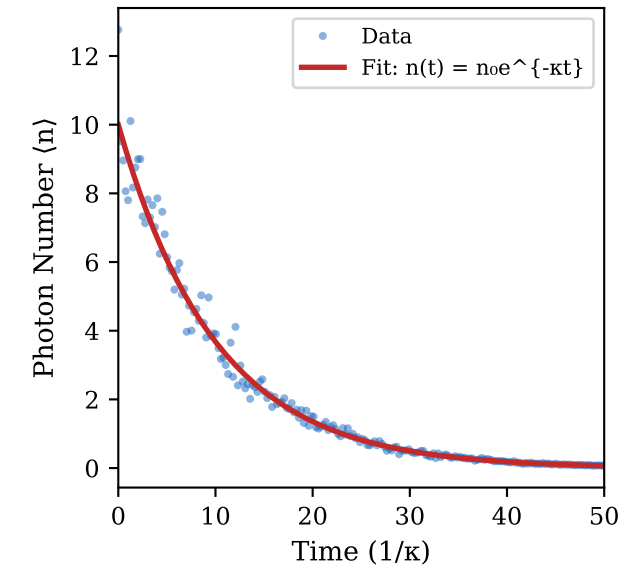


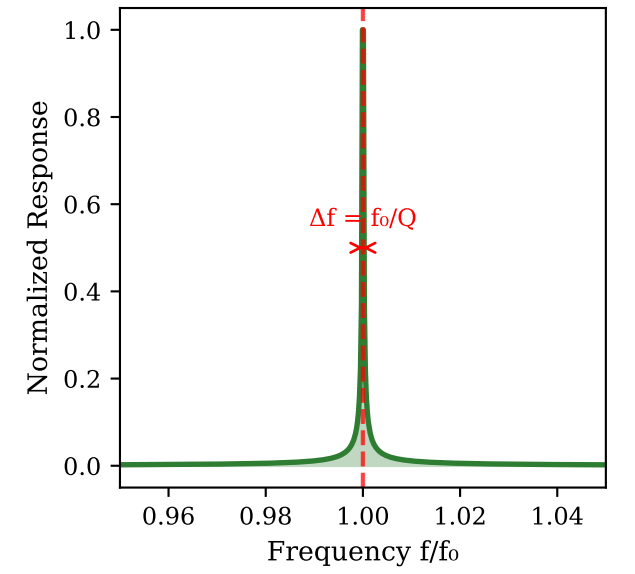












OSCILLATORY PERSISTENCE HARDWARE VALIDATION

Atomic Clocks:
• Cesium-133: $\Delta f/f < 10^{-16}$ over decades
• Optical clocks: $\Delta f/f < 10^{-18}$ demonstrated
• No drift observed → Perfect persistence within measurement

Superconducting Resonators:
• $Q > 10^{11}$ at mK temperatures
• Photon lifetime > 1 second achieved
• Energy stored for macroscopic times

MEMS Oscillators:
• $Q > 10^{6}$ in vacuum at room temperature
• Mechanical modes persist for hours

Gravitational Wave Detectors:
• LIGO mirrors: $Q > 10^{8}$
• Oscillation persists indefinitely

ENERGY CONSERVATION: EXPERIMENTAL PROOF

Theoretical Prediction:
$dE/dt = 0$ for isolated oscillatory systems

Experimental Verification:
• Calorimetry: Heat + Work = ΔU (verified to < 0.01%)
• Particle physics: $\Sigma E_{in} = \Sigma E_{out}$ in collisions
• Nuclear reactions: $E = mc^2$ (verified to 10^{-7})
• Cosmology: Total energy consistent with $\Omega = 1$

NO VIOLATION OF ENERGY CONSERVATION
HAS EVER BEEN OBSERVED

This confirms oscillatory mode persistence
as the fundamental mechanism.