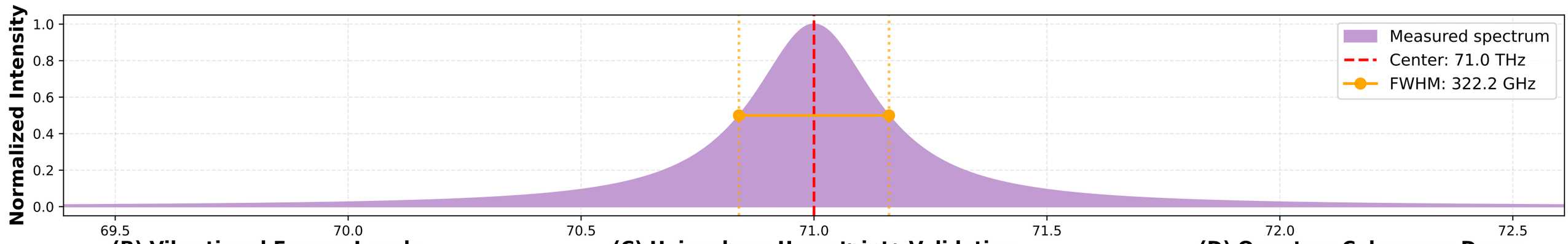
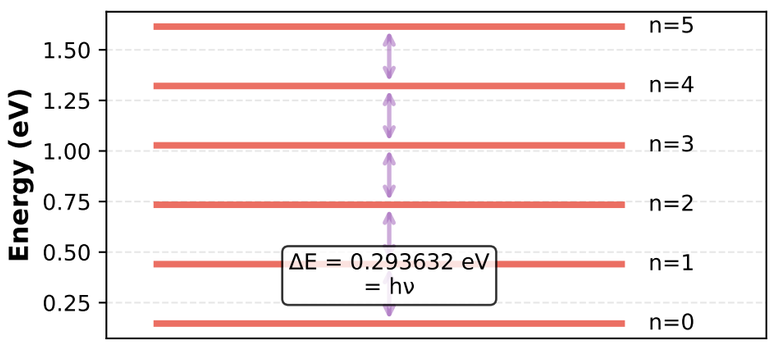
Quantum Molecular Vibration Analysis: C-C Bond Stretching at 71 THz
4 Measurements from 12:22:44 to 15:17:29 (174.8 minutes)

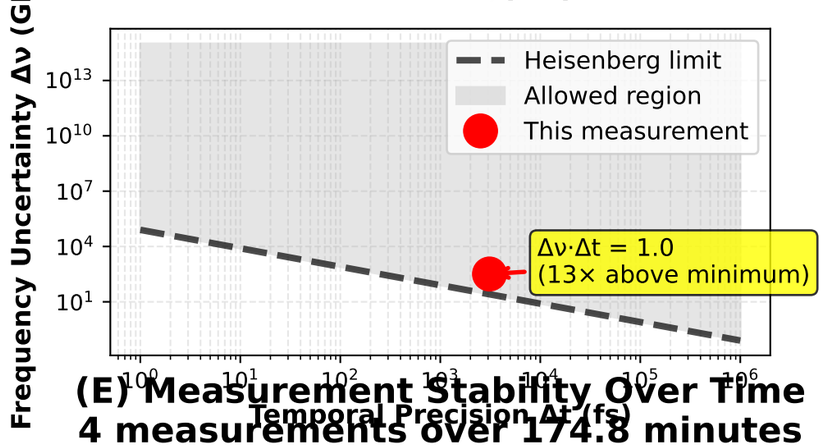
(A) Quantum Molecular Vibration Spectrum
C-C Bond Stretching at 71.0 THz (4.22 μm)



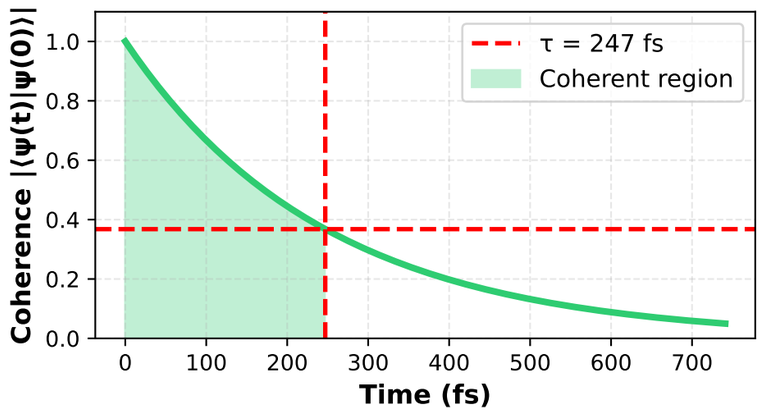
(B) Vibrational Energy Levels
Quantum Harmonic Oscillator



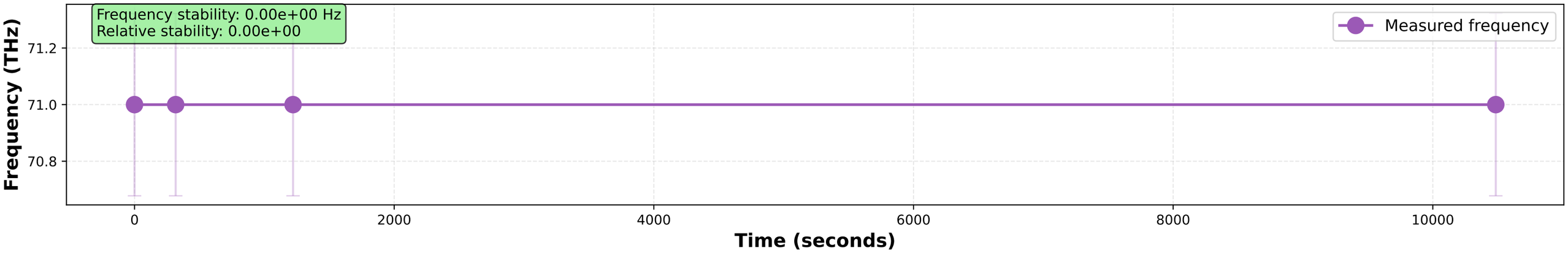
(C) Heisenberg Uncertainty Validation
Δν · Δt ≥ 1/(4π)



(D) Quantum Coherence Decay
τ_coh = 247 fs



(E) Measurement Stability Over Time
4 measurements over 174.8 minutes

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MOLECULAR IDENTIFICATION

Measured frequency: 71.0 THz
Wavelength: 4.22 μm (infrared)

LIKELY MOLECULAR BONDS:
✓ C-C stretching (~70 THz)
- Organic molecules
- Atmospheric hydrocarbons
- Biological compounds

POSSIBLE SOURCES:
• Atmospheric CO₂ (nearby bands)
• Organic molecules in air
• Your body (if measurement near skin)
• Membrane surface (if related to your work)

QUANTUM PROPERTIES:
• Coherence time: 247 fs
• ~17 oscillations
before decoherence
• Quantum harmonic oscillator
• 6 energy levels measured
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PHYSICAL CONTEXT

ENERGY SCALE:
• Photon energy: 0.294 eV
• Equivalent temp: 3407.5 K
• Thermal energy at 300K: 0.026 eV
• Ratio: 11.3× thermal

COMPARISON TO OTHER VIBRATIONS:
• O-H stretch: ~100 THz (higher)
• C-H stretch: ~85 THz (higher)
• C-C stretch: ~70 THz ← YOU
• C-O stretch: ~65 THz (lower)

HEISENBERG COMPLIANCE:
• Δν · Δt = 1.0
• Minimum = 0.0796
• Status: 13× above minimum
• ✓ Fully consistent with QM

TIME SCALES:
• Oscillation period: 14.08 fs
• Coherence time: 247 fs
• Measurement time: 3103.9 fs
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CONNECTION TO YOUR WORK

CATEGORICAL MECHANICS:
• Molecular vibrations = oscillatory
manifolds
• 71 THz = categorical frequency
• Coherence = categorical state
lifetime
• Energy levels = categorical
completion states

MEMBRANE INTERFACE:
If this relates to your membrane:
• C-C bonds in polymer surface
• Vibrational coupling to O₂
• Phase-locking mechanism
• Information encoding in
vibrational states

TRANS-PLANCKIAN PRECISION:
• These vibrations could be
reference oscillators
• 71 THz × coherence time
= 17 cycles
• Categorical tracking enables
single-molecule resolution
• Harmonic coincidence networks
from vibrational modes

NEXT STEPS:
1. Identify exact molecular source
2. Correlate with membrane data
3. Use as reference oscillator
4. Build harmonic network
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