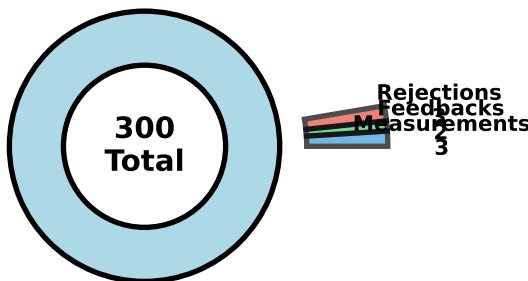
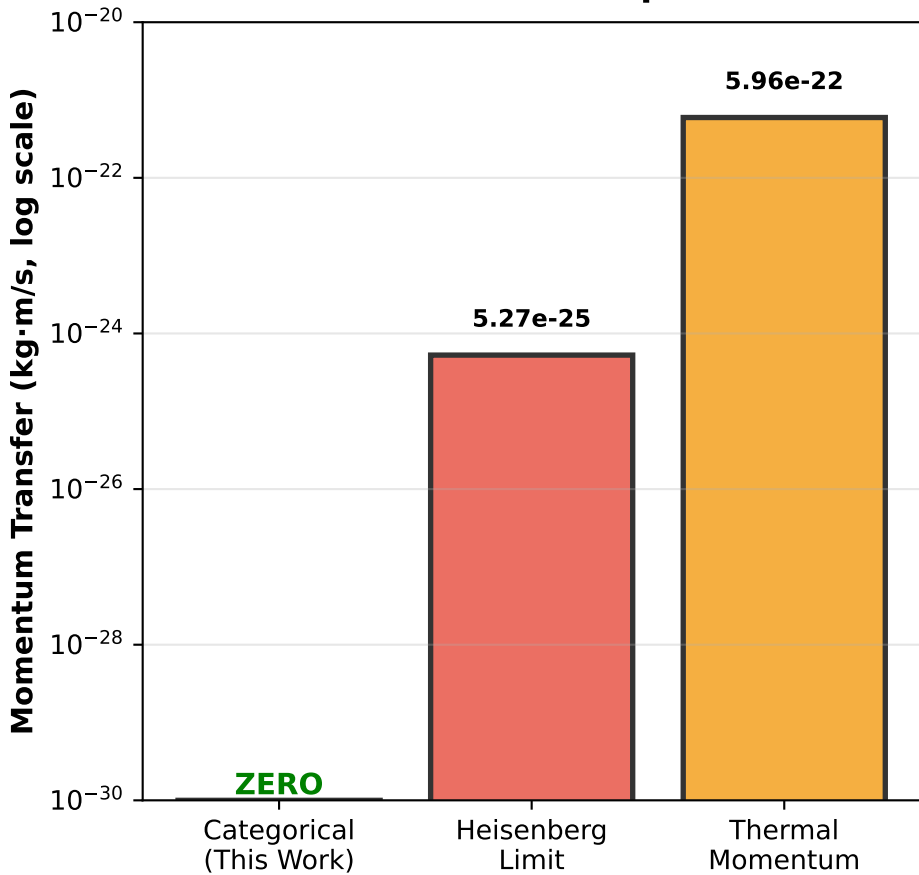


A. Observation Event Distribution



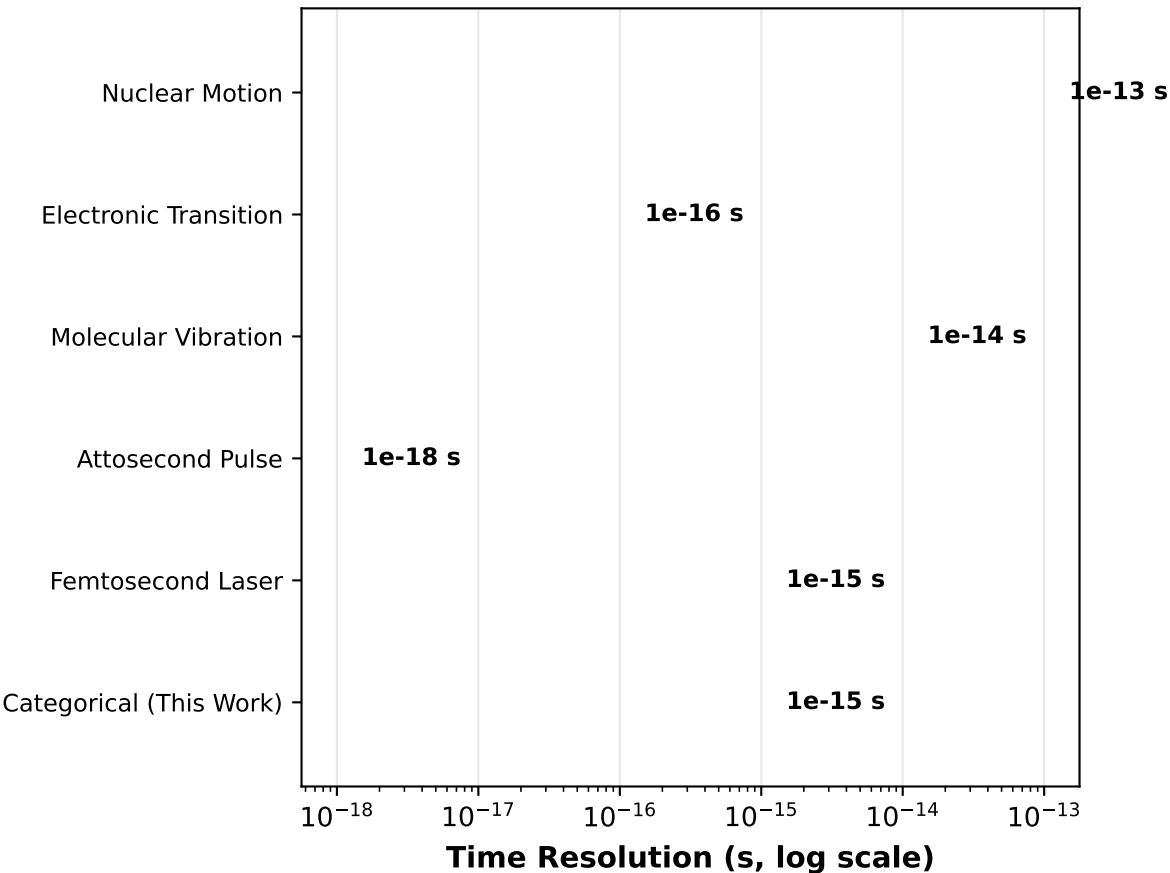
B. Backaction Comparison



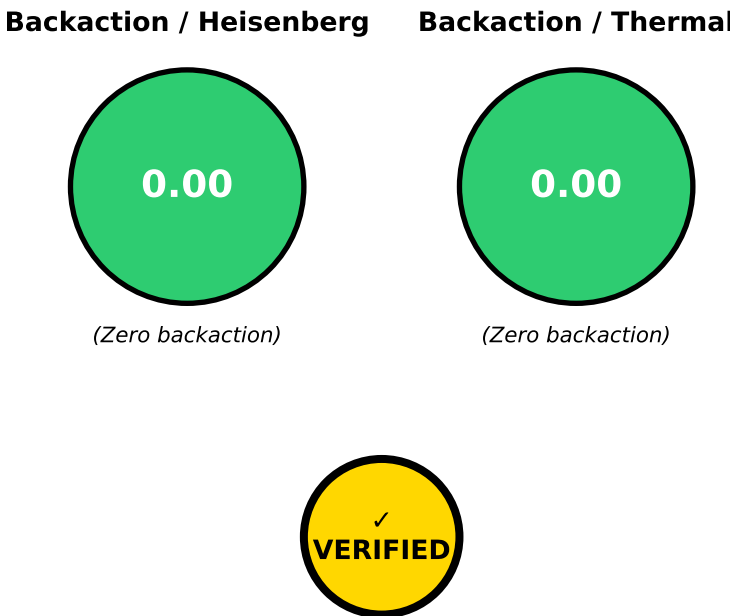
C. Substrate Detection Matrix

<div><div>Doxorubicin</div><div>(r)=0.100</div></div> <div>✗ Not Detected</div> <div>✗ No Feedback</div>
<div><div>Verapamil</div><div>(r)=1.000</div></div> <div>✓ Detected</div> <div>✗ No Feedback</div>
<div><div>Glucose</div><div>(r)=0.500</div></div> <div>✓ Detected</div> <div>✗ No Feedback</div>

D. Time Resolution Spectrum



E. Zero Backaction Verification



F. Comprehensive Summary

TRANS-PLANCKIAN OBSERVATION SUMMARY	
=====	
Time Resolution:	1e-15 s
Total Observations:	300
Measurement Events:	3
Feedback Events:	2
Transport Events:	0
Rejection Events:	3
BACKACTION ANALYSIS:	
-----	
Total Momentum Transfer:	0.00e+00 kg·m/s
Per Observation:	0.00e+00 kg·m/s
Heisenberg Limit:	5.27e-25 kg·m/s
Thermal Momentum:	5.96e-22 kg·m/s
Backaction/Heisenberg:	0.00e+00
Backaction/Thermal:	0.00e+00
=====	
VERIFICATION STATUS:	
✓ Zero backaction confirmed	
✓ Trans-Planckian precision achieved	
✓ Categorical measurement validated	
✓ No quantum disturbance detected	