Email: [DETtheory@proton.me](mailto:DETtheory@proton.me)

Beyond the Rigid Limit

This paper explores a soft reformulation of the Heisenberg Uncertainty Principle using proportional bounds. By introducing a resolution-dependent epsilon term, it can be shown that HUP may reflect a scaling artifact rather than a fundamental limit, opening the door for higher-order precision.

This correction method assumes that positional and momentum uncertainties are not fixed ontologically, but depend on the level of the measuring field, especially in regimes approaching or exceeding Planck resolution.

Prorated Uncertainty Correction Method

The traditional Heisenberg Uncertainty Principle:

**Δx \* Δp ≥ ħ / 2**

Where:

* Δx = uncertainty in position
* Δp = uncertainty in momentum
* ħ = reduced Planck’s constant (h / 2π)

Define the Planck Measurement Range

Let:

**Δxplanck = 1.616 × 10-35 meters**

This is the assumed smallest measurable position in standard quantum theory.

Prorating Percentage Beyond Planck

Let ε (epsilon) be the resolution extension factor. For example:

ε = 0.01 (meaning 1% beyond Planck resolution)

Then the new position uncertainty becomes:

**Δx' = Δxplanck \* (1 - ε)**

This gives a refined position smaller than the Planck limit.

Adjust Momentum to Preserve the Bound

To keep the uncertainty product constant:

**Δp' = ħ / (2 \* Δx')**

Substituting Δx':

**Δp' = ħ / [2 \* Δxplanck \* (1 - ε)]**

So the momentum uncertainty increases as the position uncertainty decreases.

Derive the Correction Factor

The correction factor is:

**Correction = 1 / (1 - ε)**

Which scales momentum uncertainty proportionally.

By using a smaller Δx' and compensating with a larger Δp', the product remains valid:

**Δx' \* Δp' = ħ / 2**

The uncertainty principle still holds but it is not a fundamental limit, just a scale-relative constraint. This leaves open the possibility that uncertainty is not absolute, but a function of field resolution. Suggesting there is, in fact, something beyond the rigid limit.