MBNM (MeasuringByNotMeasuring) thought experiment

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Here's a thought experiment. Let's assume that we have the most cutting edge technology at our disposal.

We need an electron detection sphere, as small as possible, it must detect a single electron when it hits the surface.

Now assume that we introduce an electron in the sphere, as slowly as possible.

One of the possible ways is to introduce the electron in the centre, apply a strong repulsive force on the electron from all the sides so as to stun it and after some time remove the force. (This is optionary)

Now the electron is in the sphere in “resting” position. But it's velocity cannot be zero due to uncertainty. So assuming that it has some velocity, it will eventually go and hit one of the walls of the sphere.

NOW here comes the catch

The more and more we wait without the sphere detecting the electron, the more and more certain its velocity becomes. Assuming that the electron can be anywhere within the sphere at any given point.

The uncertainty in the position is

$\Delta x = 0.288675134*d$

And the uncertainty in velocity is

$\Delta v = d/t-(-d/t) * 0.288675134 = 0.288675134*2d/t$

where d is the diameter of the sphere, t is the wait time, and m is mass of electron, which is a known constant and 0.288675134 is the co-efficient of standard deviation for unity even distribution.

So the total uncertainty is **$(2md^2)/12t$** which must be greater than **$h/(4*pi)$**.

So there is a threshold time, when the uncertainty melts down. All we have to do is repeat the experiment a trillion times and wait for a long long time.

Let’s consider a sphere of 1m for simplicity sake. Then according to HUP

t<= (2m*4*pi)/(12*h)

if we solve this we get t <= 2879.33092s = 48 min(approx).

So if we can contain an electron within a resting sphere of diameter 1m, without the electron coming in contact with the walls of the sphere for 48min, Heisenberg Uncertainty Principle becomes epistemological not ontological.

Conclusion: Either there is something wrong in the whole logic (likely) or that uncertainty is fundamental but not elemental and absolute.

Extended conclusion (This is just my opinion):- But HUP is very important and frequently appears in equations, it is epistemological and something very very fundamental. **Maybe** its an epistemological fundamental, i.e no particle can affect another particle arbitrarily, it can only affect another particle in a quanta, or else more precisely causality is not continuous, its discrete, **QUANTUM CAUSALITY!**