

Particles of Hydrogen in the Universe

I can prove that it takes 10^{30} grains of sand to fill a sphere the size of planet Earth

Using the Hubble Deep Field pictures I can prove there exists at least 10^{36} stars in the Universe.

The astrophysics number for stars in the Universe is 10^{23} stars

According to this website there is on average 10^{35} grams of hydrogen for the average star.

And 10^{24} protons per gram of hydrogen

Thus

For their $(10^{23} \text{ stars/universe})(10^{35} \text{ grams/star})(10^{24} \text{ protons/gram}) = 10^{82}$ hydrogen atoms/universe

So how does this compare to my estimate?

$(10^{36} \text{ stars/universe})$ instead of $10^{23} \text{ stars/universe}$ makes 10^{13} stars more in magnitude making 10^{95} hydrogen atoms per universe for me.

Now if this is only the visible universe and dark matter makes up nearly 90% of the universe so we have less than 10 %? Let's say we have 10% for 10^{95} atoms/universe

If 1×10^{95} is 10% then 9×10^{95} is 90% and adding these would just give 10×10^{95} or 10^{96}

But if the universe is $\frac{3}{4}$ hydrogen and $\frac{1}{4}$ helium that would make 1×10^{95} hydrogen and $.25 \times 10^{95}$ helium but helium has 2 protons each atom making 0.5×10^{95} helium but it also has two electrons and two neutrons making the helium have 1.5×10^{95} particles and hydrogen has an electron making it now have 2×10^{95} particles making the entire amount of particles in the universe 3.5×10^{95} particles so now taking dark matter into account would be 9 times that number if dark matter was similar so now 31.5×10^{95} dark matter particles for a total sum of 35×10^{95} particles in the universe or 3.5×10^{96} particles in the universe for me or 13 magnitudes less for the astrophysicists or 3.5×10^{83} particles.

Since Avogadro's number is 6.0221413×10^{23} of anything is a mole. We have 3.5×10^{96} particles/universe divided by 6.0221413×10^{23} particles/mole = $.5811886214 \times 10^{73}$ moles/universe

Or $5.811886214 \times 10^{72}$ moles/universe according to my calculations and 10^{59} moles/universe according to the astrophysics.