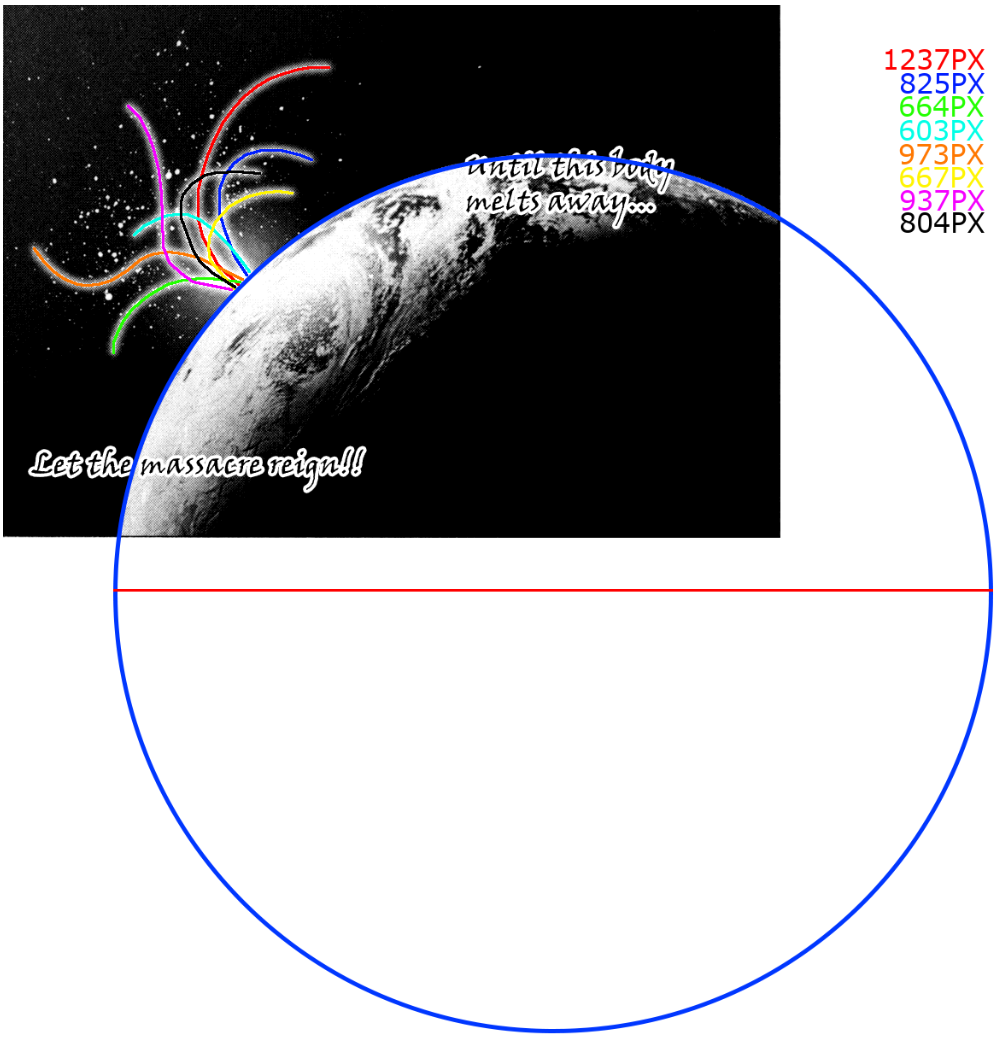
Hello, everyone! I am back with another calc! Probably the last calc for Lucy for the longest of while. This time, we shall be calculating not only the KE of her vectors, but also calculating the theoretical Attack Potency of the vectors here by calculating the thermal radiation the vectors should be able to emit in the sizes they've reached. So here we go...



Diameter of the Earth: 12,742,000 meters (3090px)

Starting off with KE of one of the vectors...

Length of Vector 1: (1237px/3090px) x 12,742,000 meters = 5,100,923.625 meters

Diameter of 1 Vector: ((8px/772.5px) x 12,742,000 meters = 123,708.7379 meters (Radius: 61,854.37 meters)

With these, we shall [find the volume of the vector]().
Volume: 6.1311151024643E+16 m3

I will now assume two densities. In Strunton's version, he assumed it was made of human flesh as a high-ball and ammonia as a low-ball. Wouldn't hurt to assume that as well. So here we go:

Human end: (6.1311151024643E+16 m3) x (1010 kg/m3) = 6.192e19 kg

Ammonia end: (6.1311151024643E+16 m3) x (0.769 kg/m^3) = 4.715e16 kg

Next thing now will be to find the speed of the vectors at which they traveled. I will assume 3 timeframes.

Low-end: 5,100,924 meters / 10 seconds = 510,092 m/s

Mid-end: 5,100,924 meters / 5 seconds = 1,020,185 m/s

High-end: 5,100,924 meters / 1 second = 5,100,924 m/s

Okay...First, the ammonia ends:

Low-end: (0.5) (4.715e16 kg) (510,092 m/s) = 6.13407E+27 J or 1.466 Exatons of TNT (**Multi-Continental**)

Mid-end: (0.5) (4.715e16 kg) (1,020,185 m/s) = 2.45363E+28 J or 5.864 Exatons of TNT (**Multi-Continental**)

High-end: (0.5) (4.715e16 kg) (5,100,924 m/s) = 6.13408E+29 J or 146.61 Exatons of TNT (**Moon level**)

Now for the human arm ends:

Low-end: (0.5) (6.192e19 kg) (510,092 m/s) = 8.0556E+30 J or 1.925 Zettatons of TNT (**Small Planet level**)

Mid-end: (0.5) (6.192e19 kg) (1,020,185 m/s) = 3.22225E+31 J or 7.70 Zettatons of TNT (**Small Planet level**)

High-end: (0.5) (6.192e19 kg) (5,100,924 m/s) = 8.05561E+32 J or 192.5 Zettatons of TNT (**Planet level**)

Whew. That's… Insane LMAO

Now for measuring the thermal radiation they should be able to emit. The following will be an application of Stefan-Boltzmann's law, seeing as they're implied to cause nuclear fusion and emit radiation at visible frequencies. But only for very short timeframes like a nuke seeing as in my previous calculation, the scientist was caught up between her vectors and wasn't vaporized. So.. to find the length of her other vectors!

Length of Vector 2: (825px/3090px) x 12,742,000 meters = 3,401,990.291 meters

Length of Vector 3: (664px/3090px) x 12,742,000 meters = 2,738,086.731 meters

Length of Vector 4: (603px/3090px) x 12,742,000 meters = 2,486,545.631 meters

Length of Vector 5: (973px/3090px) x 12,742,000 meters = 4,012,286.731 meters

Length of Vector 6: (667px/3090px) x 12,742,000 meters = 2,750,457.605 meters

Length of Vector 7: (937px/3090px) x 12,742,000 meters = 3,863,826.246 meters

Length of Vector 8: (804px/1788px) x 12,742,000 meters = 3,315,394.175 meters

Assuming the surface area of a Cylinder for each vector...

$SA = 2\pi rh + 2\pi r^2$

SA of Vector 1: 2.01×10^{12} m2

SA of Vector 2: 1.35×10^{12} m2

SA of Vector 3: 1.09×10^{12} m2

SA of Vector 4: 9.9×10^{11} m2

SA of Vector 5: 1.58×10^{12} m2

SA of Vector 6: 1.09×10^{12} m2

SA of Vector 7: 1.53×10^{12} m2

SA of Vector 8: 1.31×10^{12} m^2

Total SA: 1.095e13 m^2

https://www.bbc.co.uk/bitesize/guides/zjdpkmn/revision/2

Nuclear fusion usually happens at temperatures of 150,000,000 degrees Celsius. Of course, it would require the pressure to increase as well. However, seeing as Lucy can keep her vectors the same volume whenever she uses them to explode, the pressure should go up with the temperature (Gay-Lossac’s Law supports this after all xd).

Luminosity: (1.095e13 m^2) x (5.67x10^-8) x (1.5x10^8)^4 = 3.14e38 Watts

We're not done yet. Seeing as a normal human could be close to them even while vibrating the vectors at the extreme frequency, it means that the vectors emit this much energy in a brief moment and not for a prolonged amount of time. How brief? Likely the same briefness as a nuke takes to produce the fission/fusion reaction in a fusion nuke (About 0.8 microseconds). So, to multiply power by time to get energy!!!

(3.14e38 W) x (8x10^-7 s) = 2.51x10^32 Joules or 60 Zettatons of TNT (**Planet level**)

Nice… Pretty consistent with the explicit statement of hers.

Now… let's assume her 8 vectors here are the same size as the largest one to see what results should yield....

(2.01×10^{12} m^2) x 8 = 1.608x10^13 m^2

(1.608x10^13 m^2) x (5.67x10^-8) x (1.5x10^8)^4 = 4.62x10^38 W

(4.62x10^38 W) x (8x10^-7 s) = 3.693x10^32 or 88.31 Zettatons of TNT (**Planet level**)

I feel like she should be capable of this, seeing that everytime she makes them blow up they are the same length or at least extremely comparable. Still pretty consistent with her statement.

Okay. We shall now… Assume she can make ALL her 28 vectors that size.

(2.01×10^{12} m^2) x 28 = 5.628x10^13 m^2

(5.628x10^13) x (5.67x10^-8) x (1.5x10^8)^4 = 1.61x10^39 W

(1.61x10^39 W) x (8x10^-7) = 1.29x10^33 Joules or 308.32 Zettatons of TNT (**Planet level**)

I wouldn't go throwing out this high-end. But it is neat for a clear roof to Lucy's potential, which ends up being… Planet level.

Actually can't believe I'm actually saying this now. For years, this has been considered a myth. A mere idea. Probably impossible to get something of this level.

Planet level Lucy :)