

2006 01 22 Sunday Michio Kaku Civilization/Space/String Theory

AB: "... maybe you can take a moment and try to explain to me, ah, Professor, um, which it is you believe.

Whether you think, ah ... ah, everything was so perfect and put here by God OR whether ... well, it had to be this way ... *or we wouldn't be here!*"

MK: "Well, Art, you ask one of the deep questions, um ... ah, between Art and ... and Science.

If you take a look at Science, we have two (2) basic paradoxical principles. One (1) is called the, um, Copernicus Principle. The Copernicus Principle says that, ah, humans are not special in any particular way. That's the Copernicum [sic] Principle. Ah, and the more we discover about the Universe, it does seem as if, ah, humans are not so special.

However, there is another point of view, which has also survived every scientific challenge, and that's the Anthropic Principle. The Anthropic Principle's very simple. And that is that intelligence and life is so difficult ... so difficult to create that ya have to realize that, well, some people would say perhaps there's a Creator or perhaps it was a gigantic cosmic accident.

Now if you take a look at the constants of Nature ... for example, the mass of the proton, ah, the charge of the electron, ah, the lifetime of the Sun, the strength of the nuclear force – you realize that they're tuned just right to make Life possible.

If the nuclear force were stronger, ah, the Sun would have burnt out billions of years ago and we wouldn't be here. If the nuclear force were weaker, ah, the Sun wouldn't have ig- ... ignited at all, and we still wouldn't be here.

If gravity were a little bit stronger, we would have had a big crunch and the Universe would have collapsed billions of years ago. If gravity were a little bit weaker, then we would've had a big freeze and we'd all be frozen to death right now.

So you realize that the laws of Nature are tuned ... Tuned very precisely to make Life possible in the Universe."

* * *