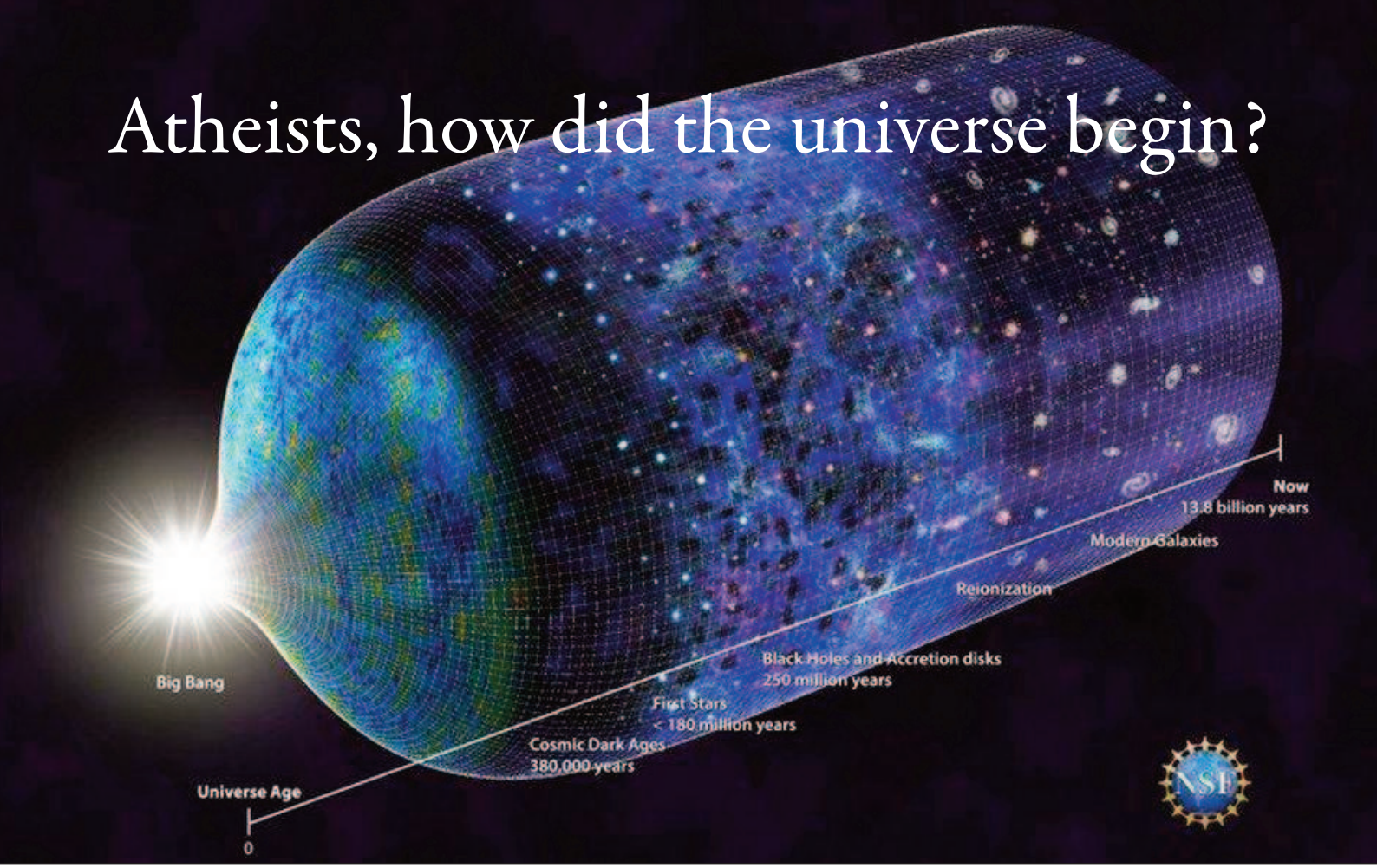
Atheists, how did the universe begin?



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THERE IS reason to believe that what we call "the universe" might be just one among many isolated pocket universes, making up a multiverse of pocket universes.

This jump from the word universe to multiverse is not as drastic as it might seem.

We already know that all the galaxies in the observable universe are moving away from each other at an ever faster rate.

We already know that some parts of the universe are moving away from other parts at faster than the speed of light. More precisely: the space between them is expanding at faster than the speed of light.

Certain observations and calculations involving the cosmic microwave background radiation and the surface of last scattering have led to the realization that some regions of the universe (multiverse) might have always moved away from each other at faster than the speed of light.

Since there are no physical processes that can travel faster than light, this means that these regions have never, and will never, interact with each other. Gravity, heat, light: none of these have ever bridged the gap between these regions, and never will, so it makes sense to call them independent "pocket" universes.

The eternal inflationary model predicts that inflation gives rise to an ever-increasing number of pocket universes, each of which is also expanding.

Furthermore, it's possible that the multitude of observations that gave rise to the big bang model of cosmology apply to our pocket universe alone, and not necessarily to the multiverse.

In any case, there is much that we still do not know about the universe (or multiverse).

There also might be much we still do not know about time.

It's important to remember that humans are the product of evolution via natural selection, and we have evolved to perceive one type (range) of electromagnetic radiation in a particular way that helps ensure our survival. And we've no doubt evolved to understand/perceive time in a way that is beneficial to our survival.

Like much of our intuitions, our intuition about time flowing forward from the past to the future might turn out to be incorrect.

Einstein's general relativity has already shown us that time is malleable, as it is affected by relative speed, gravity, and acceleration. More recently, physicists have suggested the flow of time may be illusory, since a definite flow in one direction only emerges in a thermodynamic context.