Cosmological Dark Ages and Antimatter
sgm, 2018/NOV/16

Believe it or not, our universe had a period of time we call the Dark Ages: https://en.wikipedia.org/wiki/Chronology_of_the_universe which lasted for about the first billion years. Near the tail-end of that period, the first quasars formed: https://en.wikipedia.org/wiki/ULAS_J1342%2B0928 which are among the earliest known structures in our cosmos.

In the process of developing a unique novel theory of antimatter and PABHs, primordial antimatter black holes, I may have developed a plausible explanation of the Dark Ages and several other features of our universe including baryon asymmetry and dark energy: https://en.wikipedia.org/wiki/List_of_unsolved_problems_in_physics#Cosmology_and_general_relativity (above is the full list of unsolved problems in cosmology)

For the uninitiated, 2/12 may sound trivial and unimportant but baryon asymmetry has plagued cosmology since the inception of that science – and – dark energy is the proverbial 'pink elephant in the room' from when we realized the universe is ***increasingly*** expanding. The theory outlined in this essay may also explain inflation but I would be entirely content with 2/12 listed above .. Back to the Dark Ages .. We don't try to explain it currently; we just assume it took around 1 billion years for quasars to start forming; we don't assume anything else happened in that period that mattered.

However, if I'm anywhere near the truth about antimatter, what we label as the Dark Ages was actually the Antimatter Epoch. Antimatter galaxies formed, antimatter stars within them formed and died, and this tumultuous chaotic epoch set the stage for our earliest galaxies and quasars.

The average lifetime of one of our normal matter stars is about 1 billion years. And according to my calculations, the rate of nuclear reactions in antimatter stars is at least twice as fast, perhaps 10 to 100 times faster. Assuming a middle magnitude, 10, antimatter stars would burn and die in about 100 million years. Any antimatter planets within the Goldilocks-zone of those parent stars would not have time to evolve intelligent life, assuming it takes billions of years for that as it did on Earth. So the rate of antimatter star-death explains three things:

1. baryon asymmetry
2. Cosmic Dark Ages
3. no antimatter civilizations

The last may seem like a ridiculous observation but consider the placement of the Dark Ages relative to our period – about 13 ***billion*** years ago. They would have had plenty of time to evolve into what we would label as gods – had they got to our evolutionary level 13 billion years ago. So it's not a trivial nor ridiculous observation .. Baryon asymmetry is explained because, depending on the actual rate of antimatter star-death, much if not all of the antimatter would presently be in the form of antineutron stars and antimatter black holes.

That leaves dark energy. This is a bit complex and requires a discussion of PABHs:
http://vixra.org/pdf/1806.0252v1.pdf
and time and antimatter:
http://vixra.org/pdf/1811.0210v1.pdf

https://en.wikipedia.org/wiki/Dark_energy
is the Wikipedia reference to compare to. Instead of having you go back-and-forth between them,

I'll detail the highlights of the Antimatter Epoch which heuristically describe the *whys* of ~70% dark energy currently observed:

1. PABHs are *faster* than PBHs – I call them 'cosmic vacuum cleaners'

2. stellar death drives galactic death; as antigalaxies died, they contributed to the population of PABHs which gave them *superior numbers early on*, dominating rare but non-zero-probability direct collisions

3. every time a BH and ABH collide, the ABH dominates and results in a larger ABH

So what started as 50:50, after 14 billion years of antimatter dominance, is now ~70:30 – with most of that happening during the Dark Ages / Antimatter Epoch. The current observable consequences are: accelerated expansion, dark flow, the Dipole repeller, and baryon asymmetry.