

Ask A Genius 44 - Informational Cosmology 20

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Scott: How heavy are the blackish holes – compared to the Sun? How many stellar masses? Also, why so dense and old? How does this correspond to the armature?

Rick: Black holes at the center of galaxies run anywhere from a million stellar masses, masses of the Sun, to probably tens of billions. It is a bunch. It is as if you took up to 10% of the mass of a galaxy existing just in the black hole in the center, though not usually 10%, probably 1% or less.

Still, it is a huge number equivalent to the number of stars in just one thing. Under Big Bang physics, you'd be able to argue, I guess, that this thing formed because you had a galaxy 12 billion years ago, and things formed as they crashed into each other.

They gave up all of their mutual kinetic energy without the orbital energy in the center of the galaxy. This happened a lot in the early life of the galaxy. In the early life of large sets of orbiting bodies, you have chaos that gets straightened out by mutual collisions and interactions until in an old solar system like we have, which is probably 5 billion years old.

You don't have crashes that often. You had crashes until things straightened out. They crashed until they formed the planets and the Sun, until things worked out. Same thing for a galaxy.

Things coming together, clunking up, falling into the center.

You'd expect for there to be some totally big thing at the center of the galaxy for a lot of the early crashes on an early scale. I don't know if that's enough to explain the massive size of the black holes at the center of the galaxy.

Under IC, the massive black hole exists because the universe is older by many factors. If those central blackish holes in the center of galaxies had more than 12 billion years to aggregate – we also argue blackish holes are able to interact with the galaxies that contain them.

You'd expect under standard physics something different because the gravitational well is attenuated and is mediated by the exchange of information between the black hole and the stuff that surrounds it.

I suspect that galaxies have roles in processing information. Looking at your brain as it processes information, some your apps are always on when you're awake. These are always running. Those that help you move through and understand your surroundings.

Then there are other apps that only come on when needed. How to behave when you feel as if you are in danger. Well over 99% of the time, unless you've got some crazy life, you don't feel as if you're in danger. So, your danger apps are not usually on.

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