

Debate Arising from James Webb Space Telescope

Post by “Martin” of August 25, 2022 at 3:24 PM

Here is my understanding from occasionally reading articles from cosmologists and astrophysicists for other physicists:

The data we have are best described by expansion from something what was at least similar to a Big Bang.

Some of the difficulties are:

Simply extrapolating the observations back leads to a singularity, i.e. energy density and mass density were infinite, from which the universe started in some sort of giant explosion. That is why that singularity was called Big Bang. In this simple extrapolation, time started with that singularity. However, at that time and until a tiny fraction of a second after the singularity, the conditions were such that our known laws of physics were most likely not valid. So a Big Bang in the strict sense of that singularity might indeed not have happened because the extrapolation to the singularity itself is invalid. That opens ways to speculate about a time before the point in time of the nominal singularity. However, we have no data to support these speculations.

Photons could not escape from the very dense matter of the early universe. No matter how good our optical telescopes become, that most interesting early universe will remain optically invisible. We may have a better chance to get closer with other methods, e.g. gravity waves.

Alan can probably explain this more accurately and in more detail.