The first five minutes in the universe

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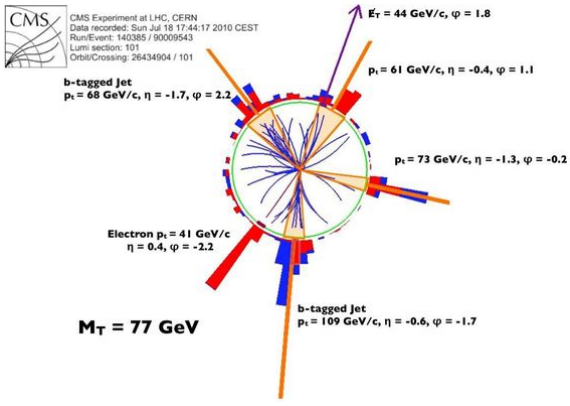
Introduction

From about 14 billions years ago all of the universe was contained in a single point called singularity, the point had infinite temperature and density and smaller than the size of a proton, spacetime in the laws of physics didn't exist in this singularity and then it expands to form space and time. [1]

Introduction

The edge of the universe extend faster than the spped of light, growing by a factor of 10 to the 26 and the 10 to the negative 33rd.

This ain't expanding to the size of the milky way, almost instant as it grows and cools down, but still too hot for atoms to form and the entire universe is permeate with a roaring hot plasma soup of quarks and gluons which are the fundamental building blocks of matter, as time passes, temperature drops and at three minutes it's two trillions kelvin, this is cool enough for quarks and gluons to combine to form protons and neutrons and eventually the first atoms.



Quarks Formation

At this time, the universe was like a nuclear reactor, firstly it forms atomic nuclei of hydrogen, those nuclei then combine to form helium, but those nuclei are ionized, it's too hard for them to capture electrons.

All of the electrons in the universe are flying around freely, smashing into photons, which scatters light, makes the universe opaque.

References

1. G. Steigman. Big bang nucleosynthesis: Probing the first 20 minutes. *arXiv preprint astro-ph/0307244*, 2003.