

The First 13.8 Billion Years

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ABSTRACT: Our universe started nearly 14 billion years ago in a plasma hotter than any nuclear explosion and has been cooling and expanding ever since. After four minutes, the temperature of the plasma had dropped below a billion degrees, and the quarks and gluons of the plasma had turned into protons, neutrons, and helium nuclei. The energy of the plasma, however, remained radiation, mostly photons and neutrinos. After 52,000 years, the energy density of ordinary and dark matter began to outweigh that of radiation. When 380 thousand years had passed, the temperature dropped below 3000 degrees and hydrogen atoms were stable for the first time. The universe suddenly became transparent. About 3.6 billion years ago the dark-energy density exceeded that of matter, and the expansion of the universe accelerated.

ALL ARE WELCOME!