



In essence, the history of the formation of the elements can be divided into two main phases: one that ended after the first 20 minutes, and the other that has been ongoing since the formation of the first stars over 13 billion years ago.

This pie chart illustrates the average abundance by mass of the various elements in the Universe (called the cosmic abundances) in parts per 10,000. The large abundance of hydrogen and helium and the small abundances of all the rest of the elements (about 2% of the total), as well as evidence from other observations, indicate that the Universe was once composed of just one element, hydrogen, and that the nuclear fusion reactions that produce the heavier elements have proceeded very slowly over the 13.7 billion year history of the Universe. This is a good thing, since otherwise the Sun would have likely burned out long ago.

