

## NUCLEOGENESIS OF THE NATURALLY OCCURRING ELEMENTS

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*The naturally occurring chemical elements present in the universe are all created by nucleosynthesis. The Big Bang theory predicts that the early universe, originated more than billion years before, was extremely hot and with its progressive expansion and cooling, the elemental nuclei and other nuclear building blocks of matters, were created by interactions of the charged and neutral elementary particles after the primordial quark-gluon plasma froze out into free protons and neutrons. Presently, more than 90% of the universe is composed of the simplest elements, hydrogen and helium, most of which were created by the process of primordial nucleosynthesis, sometimes called as nucleogenesis, in the big bang at the beginning of the universe. All other heavy elements starting from carbon, nitrogen, oxygen, etc. to thorium, uranium, were produced by different distinct thermonuclear reaction pathways in the stellar systems, supernova explosions and by cosmic-ray spallations.*

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