The $^{12}\text{C}(\alpha, \gamma)^{16}\text{O}$ reaction and its implications for stellar helium burning

The $^{12}\text{C}(\alpha, \gamma)^{16}\text{O}$ reaction determines the ratio of $^{12}\text{C}$ to $^{16}\text{O}$ in the universe. These elements are both the building blocks of organic life and the fuels for stars in the later stages of their evolution. Using the most sophisticated and comprehensive R-matrix analysis of the $^{16}\text{O}$ compound nucleus to date, a greatly improved understanding of this reaction has been achieved.

Monte Carlo Uncertainty analysis

Red Giant, Carbon Star

“U Cam”

www.nasa.gov