

## **How we got here - the formation of carbon in stars**

Martin Freer

*School of Physics and Astronomy, University of Birmingham, Birmingham B15 2TT, United Kingdom*

One of the most fascinating questions is the how the elements of which we are composed are made. It is known that a large variety of stellar processes are required from quiescent burning through to the dramatic supernovae. Carbon is made through the triple-alpha process which is part of the red giant phase and largely is facilitated through a state in  $^{12}\text{C}$  known as the Hoyle-state. This talk will focus on the quest to understand the nature of the Hoyle-state and its broader implications for the structure of nuclei.