

The Early Generations of Rotating Massive Stars and the Abundances of Extremely Metal-Poor Stars

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The study of the long-dead early generations of massive stars is crucial in order to obtain a complete picture of the chemical evolution of the Universe. The nature of these stars can be inferred indirectly by investigating the origin of low-mass metal-poor stars observed in our neighborhood, some of which are almost as old as the Universe. The material forming these low-mass metal-poor stars is generally thought to have been inherited from the ejecta of one or very few previous massive stars. I will show how the physics - especially rotation and nucleosynthetic processes - of the early generations of massive stars may be constrained by combining stellar evolution models including s-process and rotation with observations of metal-poor stars. A new abundance fitting analysis of about 200 extremely metal-poor stars will be discussed. From this study can be derived the characteristics of the best massive star progenitors, in particular their velocity distribution.