



## The Red Supergiants: Crucial Signposts for the Fate of Massive Stars

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### Message from the Guest Editor

Dear Colleagues,

The majority of massive stars, typically 9 to about 40 solar masses, will pass through the red supergiant stage. Red supergiants have long been considered the end product of stellar evolution for stars in this mass range with a terminal explosion as a Type II supernova. They were often dismissed as generally well-understood, in comparison with the more massive hot stars and their strong stellar winds. But studies of SN progenitors in other galaxies have now brought into question the terminal state of the most luminous red supergiants. The final fate of red supergiants may depend on several factors. The most prominent may be their mass loss histories, but the mass loss mechanism for these largest stars is still debated. The recent “great dimming” of Betelgeuse demonstrated the significance of gaseous outflows from active regions on its surface. Similar phenomena are observed in red hypergiants, such as VY CMa with its history of episodic high mass loss events. This volume will focus on recent research on red supergiants, their properties, mass loss rates, mass loss mechanisms, the role of surface activity, and questions about their evolutionary state.





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