

Type Ia supernovae: Explosions and Progenitors

Abstract:

"Type Ia supernovae are known as the precise distance indicators that allowed the remarkable discovery of the accelerated expansion of the universe. Despite this astounding feat, there still remain large uncertainties in many of the key issues surrounding these extremely energetic events. These uncertainties, while not being horribly detrimental to their use as distance indicators, hamper the understanding of the far reaching consequences these cosmic factories of heavy elements have on the chemical evolution of the Universe.

Type Ia Supernovae can be divided into three distinct phases. The pre-supernova evolution, the explosion itself and the expansion phase. In this talk I will first presents our findings on the progenitor question (pre-supernova phase), then shortly touch on our understanding of the explosion itself, and finally present our work on modelling the spectra resulting from the expansion phase. I will close by giving an outlook of the future of spectroscopic modeling and its consequences for our understanding of pre-supernova evolution and explosion physics."

Cheers,
Wolfgang