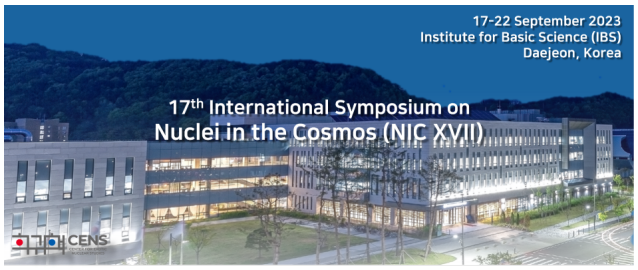

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Evolution of accreting white dwarfs in close binary systems including the effects of rotation and magnetic fields and implications for Type Ia supernovae

Thursday, 21 September 2023 14:00 (30 minutes)

Accreting white dwarfs in interacting binary systems are closely related to explosive events like novae and Type Ia supernovae, which play an important role in the chemical evolution of the universe. Although numerous studies on the evolution of accreting white dwarfs have been presented in the literature, there has been a relatively limited focus on exploring the impact of rotation and magnetic fields on these systems. Given that the accreted matter is supposed to carry a large amount of angular momentum to spin-up the white dwarf, the resulting rotational and magnetic instabilities would lead to a significant chemical mixing as well as a change of the hydrostatic structure. This can in turn have important consequences in the pre-explosion structure and the nucleosynthesis of novae and supernovae. In this talk, I will present some recent evolutionary models of helium-accreting white dwarfs including these effects and discuss how they can alter our view on the so-called double-detonation scenario for Type Ia supernovae.

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