

THE UNIVERSITY OF HONG KONG

DEPARTMENT OF PHYSICS

RESEARCH SEMINAR

Formation Channels of Magnetars

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Abstract:

Magnetars are neutron stars (NSs) with strong magnetic fields and are associated with various high-energy astrophysical phenomena. However, their formation channels remain an open question. In this work, we explore potential magnetar formation channels and quantify their contributions using population synthesis simulations, considering both single-star and isolated binary system evolution. By varying model parameters, we compare the effects of various evolution processes on magnetar formation. Additionally, we study the delay times and kick velocities across all formation channels and analyze the orbital properties and companion types of surviving magnetar binaries.

Biography:

Ruichong Hu is a Ph.D. student at the University of Nevada, Las Vegas, supervised by Professor Bing Zhang. His research focuses on understanding how different physical processes affect the formation of compact objects (neutron stars and black holes) through numerical simulations of binary evolution.

Friday, May 15, 2026, 2:30pm

Room 522, 5/F, Chong Yuet Ming Physics Building, The University of Hong Kong

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