

THE UNIVERSITY OF HONG KONG

DEPARTMENT OF PHYSICS

RESEARCH SEMINAR

**Probing millisecond magnetar
formation in binary neutron star
mergers through X-ray follow-up of
gravitational wave alerts**

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Abstract:

The nature of the object powering the Gamma-Ray Bursts (GRB) relativistic jets is widely discussed. Until recently, black holes were the most widely accepted candidates; however, there is growing evidence that indicates the possibility of a millisecond magnetar as the engine of these powerful explosions. The astrophysical event of the August 17, 2017, as the first joint observation of gravitational waves (GW) along with its gamma-ray burst electromagnetic (EM) signal counterpart, opened the way to multi-messenger astrophysics, and offered astrophysicists unprecedented data to hone models involving the merger of two neutron stars. The nature of the neutron stars merger remnant, beyond reach from our observations until now, might be concealed in the X-ray light curves of those events. Marking my arrival as a new post-doctoral researcher in the HKIAA group, I will introduce myself and present my doctoral work on modeling newborn millisecond magnetars. I will outline my simulations of both merger GWs and subsequent electromagnetic (EM) emissions, concluding with predictions for future X-ray observations of GW counterparts.

Biography:



Clara Plasse recently joined HKIAA as a post-doctoral researcher. She completed her academic studies and PhD in Paris. As an active member of the SVOM collaboration, she developed the simulation frameworks for the Microchannel X-ray Telescope (MXT) alongside core instrumental work. Her current research leverages this expertise in high-energy simulations to model the emissions of newborn millisecond magnetars.

Tuesday, June 16, 2026, 3:30pm

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

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