



DEPARTMENT OF PHYSICS
THE UNIVERSITY OF HONG KONG



香港天文與天體物理研究所
THE HONG KONG INSTITUTE FOR
ASTRONOMY AND ASTROPHYSICS

HKIAA SEMINAR SERIES

Anticorrelation between Photon Index and Flux in the Crab Nebula revealed by multiple X-ray instruments

S P E A K E R

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ABSTRACT

We report an anticorrelation between X-ray flux and spectral photon index in the Crab Nebula using observations from multiple instruments. Swift/BAT (15–150 keV), RXTE/PCA (3–50 keV), RXTE/HEXTE (20–100 keV), and NuSTAR (3–78 keV) data sets were used to extend the anticorrelation across a broad energy range. In all cases, we find a persistent anticorrelation, with spectra becoming harder at higher flux levels and vice-versa. The effect is more pronounced in the hard X-ray bands than in the soft band. Because the pulsar contribution is relatively minor in this regime, the observed behavior primarily reflects nebular emission. These results provide strong and consistent observational support for the interpretation that the Crab Nebula's X-ray output arises from synchrotron radiation of shocked pulsar winds.

7 September 2026 (Monday)

2:00 – 3:00 PM

Venue: Room 522, 5/F · Chong Yuet Ming Physics Building

Department of Physics, The University of Hong Kong

Anyone interested is welcome to attend.



ZOOM FOR ONLINE PARTICIPANTS

Meeting ID 964 7297 1072

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