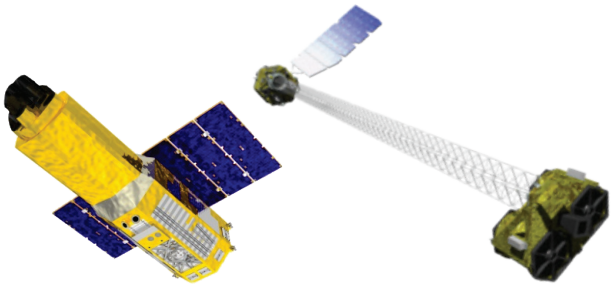
理学部物理学科・宇宙物理セミナー

Saitama University
埼玉大学

開催日時・場所(Date&Place)

2016年12月9日(金) 15:00 ～ 16:00
理学部１号館４階・物理会議室



すざく衛星　　NuSTAR衛星

講演者 (Speaker)

Dr. Gaurava K. Jaisawal
Astronomy and Astrophysics Division
Physical Research Laboratory, Ahmedabad, India

講演題目(Title)

Cyclotron resonance scattering features and Magnetic field of pulsars

概要 (abstract)

Cyclotron resonance scattering features or cyclotron absorption lines are unique features observed in hard X-ray spectra of accretion powered X-ray pulsars with magnetic field of the order of 10^{12} G. Detection of these features is a powerful tool and the only direct method to estimate the magnetic field strength close to the surface of neutron stars. Corresponding to magnetic field of ~10^{12} G, the fundamental lines are expected in 10-100 keV energy range with harmonics expected at multiples of fundamental line energy. However, we detected first harmonics of cyclotron line at less than twice of the fundamental line energy (~ 1.7 times the fundamental line energy) in Be/X-ray binary pulsar Cep X-4. With the broadband spectral capability of Suzaku and NuSTAR observatories, we have investigated several X-ray pulsars to understand line shape, width, magnetic field mapping, anharmonicity in the line energies and luminosity-dependent properties of cyclotron lines. The results obtained from these works and new detection of cyclotron line in unknown/ poorly studied sources will be discussed in detail.

要は、
エックス線天体観測衛星を用いた中性子星のエックス線分光で、中性子星の磁気圏を探る話。

ホスト:　寺田幸功 (1436号室: terada@phy.saitama-u.ac.jp)

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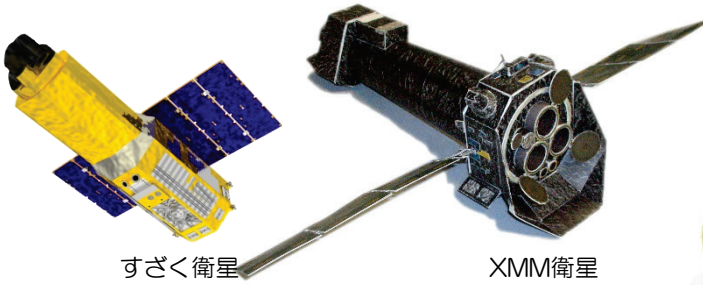

講演者 (Speaker)

Dr. Pragati Pradhan
St. Joseph's College, India

講演題目(Title)

SFXTs vs sgHMXBs: does the difference lie in the companion wind?

概要 (abstract)

We present a comparative study of classical supergiant HMXB and SFXT systems by using the absorption column density and equivalent width of iron Kα line in their X-ray emission. The work has been carried out using out-of-eclipse observations sgHMXBs(SFXTs) with Suzaku and XMM-Newton and we have taken care to separately analyse parts of any observation with significant variation in the spectrum. Analysis of all archival Suzaku and XMM-Newton observations of these systems show that sgHMXBs have a wide range of equivalent width of iron emission line and equivalent column density of absorption, both over three orders of magnitude. In comparison, the SFXTs show a smaller range for both the parameters, less than one and a half order of magnitude. These findings indicate a crucial difference in the wind characteristics of the companions of sgHMXBs and SFXTs, which could be an important factor for the intriguing difference in average X-ray luminosity and transient behavior between these two classes of sources.

ホスト:　寺田幸功 (1436号室: terada@phy.saitama-u.ac.jp)

要は、
エックス線天体観測衛星を用いた中性子星のエックス線分光で、中性子星からの星風を探る話。