



Contribution ID: 338

Type: **Talk in a parallel session**

Determining the spin-down power of the radio-quiet isolated neutron star RX J0806.4-4123

Monday, 8 July 2024 17:00 (10 minutes)

We present the strategy, analysis, and results of our four-year timing program of RX J0806.4-4123 with NICER. RX J0806.4-4123 belongs to the group of radio-quiet X-ray thermal isolated neutron stars (XTINSs) that are located between the rotation-powered pulsars and the magnetars in the P - \dot{P} diagram. The slowly rotating XTINSs constitute a key population to learn about the structure, physics and population diversity of neutron stars. RX J0806.4-4123 is close (~ 250 pc) and shows interesting multiwavelength properties that seemingly deviate from those of similar neutron stars. The spin-down power is a critical parameter in the physical interpretation of the multiwavelength findings. We will also discuss a simple and universal method for estimating the uncertainties of frequency and its derivative based on the Z^2_K statistics (K is the number of Fourier harmonics).

Primary author: POSSELT, Bettina (University of Oxford)

Co-authors: Dr HABERL, Frank; Dr PAVLOV, George; Dr HO, Wynn

Presenter: POSSELT, Bettina (University of Oxford)

Session Classification: A NICER view of extreme gravity from the International Space Station

Track Classification: Compact Objects and Stellar Evolution (CO): A NICER View of Extreme Gravity from the International Space Station