Abstract Submitted
for the MAS20 Meeting of
The American Physical Society

A New Extragalactic Population of Faint, Fast X-ray Transients[1]
WILLIAM BRANDT, Pennsylvania State University, FRANZ BAUER, Pont Univ Catolica de Chile, BIN LUO, Nanjing Univ, JONATHAN QUIROLA-VASQUEZ, Pont Univ Catolica de Chile, YONGQUAN XUE, USTC, GUANG YANG, Texas A&M Univ, CHANDRA DEEP FIIELDS TEAM — Recently, two faint X-ray transients have been discovered in the Chandra Deep Field-South. Both lasted a few hours and are extragalactic with $z = 0.74$ (spectroscopic) and $z \approx 2.1$ (photometric), implying large total energy release. The first has been proposed to be a magnetar-powered X-ray transient resulting from a binary neutron-star merger, while the nature of the second is less clear. These findings demonstrate that a population of similar transients should exist in archival X-ray observations. We have thus recently set systematic rate constraints on such transients based on 19 Ms of Chandra surveys data. Rapid searching of incoming Chandra and XMM-Newton observations, using our methodology, should allow discovery of additional such transients for prompt follow-up. Future large-grasp X-ray missions such as Athena and Einstein Probe are needed to open the faint-fast X-ray transient discovery space fully.

[1]NASA

William Brandt
Pennsylvania State University

Date submitted: 05 Oct 2020 Electronic form version 1.4