

## Celebrating 20 years of Swift Discoveries



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# A New Sample of Transient Ultraluminous X-Ray Sources Serendipitously Discovered by Swift/XRT

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Ultraluminous X-ray sources (ULXs) are our best laboratories for studying extreme super-Eddington accretion. Most studies of these objects are of relatively persistent sources; however, there is growing evidence to suggest a large fraction of these sources are transient. I will present results from Brightman et al (2023) on a sample of five newly reported transient ULXs in the galaxies NGC 4945, NGC 7793, and M81 serendipitously discovered in Swift/XRT observations. Swift monitoring of these sources have provided well-sampled lightcurves, allowing for us to model the lightcurves with the disk-instability model of Hameury & Lasota, which implies durations of 60-400 days and that the mass-accretion rate through the disk is close to or greater than the Eddington rate. Of the three source regions with prior Hubble Space Telescope imaging, color-magnitude diagrams of the potential stellar counterparts show varying ages of the possible stellar counterparts. Our estimation of the rates of these sources in these three galaxies is 0.4-1.3 yr<sup>-1</sup>. We find that, while persistent ULXs dominate the high end of galaxy luminosity functions, the number of systems that produce ULX luminosities are likely dominated by transient sources.

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