

SMBH transients and extreme AGN variability in the era of wide-field time-domain surveys

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Wide-field time-domain surveys across the multi-wavelength spectrum have revealed a complex array of transient and variable phenomena from SMBH populations, including flares from tidal disruption events (TDEs), ‘changing-look’ events when AGN broad lines appear or disappear following an optical flare, and other classes of extreme AGN variability. These events provide important insights into the formation and growth of the SMBH population, as they help us understand the SMBH mass function across redshift, and the physical mechanisms behind accelerated accretion episodes arising from disk instabilities and tidal disruption of stars. I will provide an overview of how optical, spectroscopic, and radio surveys have identified populations of such transient phenomena, and discuss the big questions that we hope to answer in the era of LSST at Rubin Observatory, Ultrasat, and new time-domain radio surveys such as the ASKAP Variable and Slow Transients Survey.

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