

## Detecting and characterizing the X-ray quasi-periodicity from candidate IMBH TDEs

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It is still in dispute the existence of intermediate-mass black holes (IMBHs) with a mass of  $\sim 10^3$ - $10^5$  solar masses ( $M_{\text{sun}}$ ) which are the missing link between stellar-mass black holes (5-50  $M_{\text{sun}}$ ) and supermassive black holes ( $10^6$ - $10^{10} M_{\text{sun}}$ ). Many candidates have been proposed including the black holes in dwarf galaxies, globular clusters, and hyperluminous off-nuclear X-ray sources. Until recently, the bright flares from tidal disruption events (TDEs) provide a new and direct way to probe IMBHs. In this talk, we will report our search for the X-ray quasi-periodicity oscillation signal from IMBH TDEs, and the discovery of a transient X-ray QPO with a period of  $\sim 85$  second (at a significance of  $>3.5$  sigma). Combining with the results from X-ray continuum fittings, the detection of QPO allows for joint constraints on the black hole mass and dimensionless spin in the range  $[9.9 \times 10^3 - 1.61 \times 10^4 M_{\text{sun}}]$  and  $[0.26 - 0.36]$ , respectively. This result supports the presence of an IMBH with a low spin, and may open up the possibility of studying IMBHs through X-ray timing of TDEs, such as EP.

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