

**BLACK HOLES IN DENSE STAR CLUSTERS**  
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TITLE: The Rate of Optical Stellar Tidal Disruption Flares

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The frequency of stellar capture by supermassive black holes depends on how the orbits of stars evolve. A precise measurement of the rate of flares due to the disruption of stars can thus be used to investigate the phase space disruption of stellar orbits close to the center of their host galaxies. However, measuring the tidal disruption flare (TDF) rate from survey data is non-trivial since it requires a good understanding of the selection efficiency. In this talk, I will report the first observational estimate of the rate of optical TDFs. The results are based on a successful search for these events among nuclear transients in galaxies using archival SDSS multi-epoch imaging data. Because of the systematic nature of this search, the very large number of galaxies, and the long observational baseline, this study provides an unparalleled opportunity to measure the TDF rate. In the near future, a comparison of the optical TDF rate with the rate measured from X-ray surveys could provide a new tool to probe the presence of circumnuclear dust in quiescent galaxies.