

BLACK HOLES IN DENSE STAR CLUSTERS
Aspen Center for Physics
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TITLE: Exploring the Extremes of SMBH Demographics with Time Domain Observations

SPEAKER: Suvi Gezari (U Maryland)

We are entering an era of powerful wide-field optical synoptic surveys that will transform the study of the variable night sky. I will highlight the power of time domain observations to study supermassive black holes (SMBHs), and in particular, to study the extremes of their demographics (mass, spin, binarity). I will present our initial results from the Pan-STARRS1 Medium Deep Survey to use the time domain to study SMBH demographics, including dormant SMBHs via the disruption and accretion of a star, binary SMBHs via periodic quasar variability, and recoiling SMBHs via spatially offset AGN. I will conclude with the exciting potential of the upcoming Large Synoptic Survey Telescope to map the demographics of SMBHs over cosmic time.