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Supermassive black hole binary candidates - Quasars with optical periodicity in the Palomar Transient Factory

Supermassive Black Hole Binaries (SMBHBs) are the natural consequence of galaxy mergers and should be fairly common in galactic nuclei, especially at close separations, where they are expected to spend most of their lifetime. Hydrodynamical simulations of circumbinary disks predict that the mass accretion rate onto the BHs and thus the brightness is periodically modulated at the orbital period of the binary. We perform a systematic search for quasars that exhibit optical periodicity, in the photometric database from the Palomar Transient Factory. We statistically identify several SMBHB candidates at sub-parsec separations.

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