

Poster at Splinter Meeting

Splinter L – The Galactic Center and the Growth of Black Holes

TIDAL DISRUPTION EVENTS NEAR A SUPERMASSIVE BLACK HOLE
IN AN OBLATE DENSE NUCLEAR STAR CLUSTER: ON EXPECTED
RELATIVISTIC SPECTRAL LINE PROFILES FROM A REMNANT
ACCRETION DISK

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We further explore a possibility that tidal disruption events (TDEs) near a dormant supermassive black hole (SMBH) can give rise to spectral features of iron in 6-7 keV X-ray signal: a general-relativistic (GR) spectral-line profile emerges from a remnant accretion disk illuminated and ionised by a hot corona, where the latter is produced by delayed accretion of remnant material. We consider a scenario where the nuclear stellar cluster (NSC) contains a dusty torus and acquires an oblate shape in its inner region (within the sphere of gravitational influence of SMBH). Resonance mechanisms of the stellar motion help to increase the orbital eccentricity for some stars in NSC and bring them close to the tidal radius, where they can give rise to TDEs (Zhang et al., 2015, ApJ, vol. 807, article id. 89; arXiv:1505.04446). A new point of the present update concerns the idea that, if a stellar disk dominates the TDE rate, that breaks the isotropy of incoming disrupted stars (Karas et al. 2014, Proceedings of RAGtime, pp. 129-136; arXiv:1409.3746).