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Probing accretion disk with the gravitational wave emitted from an EMRI

Real EMRI systems are likely to contain large accretion disks which could be as massive as the central supermassive black hole itself. Therefore, contrary to its ideal model, a real system contains an environment that could interfere with the free movement of the companion. We study such systems and found that the disk's hydrodynamic drag has a non-negligible effect on the motion of the companion and thereby leaves an observable imprint on the emitted gravitational wave (GW) signal.

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