

Broad Fe K α line from accretion disc of AGNs

Predrag Jovanović

*Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia
E-mail: pjovanovic@aob.rs*

Here we present a review of our investigations of the Fe K α line emitted from relativistic accretion disks around single and binary supermassive black holes (SMBHs) in the centers of active galactic nuclei (AGNs). We modeled the emission from the innermost parts of such accretion disks using numerical simulations based on ray-tracing method in Kerr metric. Comparisons between the resulting simulated and the corresponding observed Fe K α line profiles enable us to study space-time geometry in vicinity of SMBHs, their properties, strong gravity effects predicted by General Relativity and their accretion physics. According to the obtained results, the observed variability of Fe K α line could be explained either by some internal phenomena in the disk, such as e.g. its instability and perturbations of its emissivity, or by some external causes, such as e.g. absorption by X-ray absorbers or amplification by gravitational microlensing. Moreover, the unusual, complex and shifted composite Fe K α line profiles, if detected, could provide evidence about presence of the binary SMBHs in the centers of AGNs.