

**SIMPLIFIED MODEL OF LINE PROFILE VARIABILITY FROM
ECCENTRIC ORBITS OF SUPERMASSIVE BINARY
BLACK HOLE SYSTEMS**

Marijana Smailagić and Edi Bon

Astronomical Observatory, Volgina 7, 11060 Belgrade Serbia
E-mail: marijana@aob.rst

One of possible explanations for variability of active galactic nuclei involves existence of a system of sub-parsec supermassive binary black holes (SMBBHs) in their centre. SMBBHs are expected to exist as a result of major mergers in the Universe, and some SMBBH systems with projected separation of about few parsecs were directly observed. In this work we model the emission line profiles of active galactic nuclei assuming that a SMBBH system is located in its core, and that the accreting gas inside the circumbinary disk is photo ionized by mini accretion disk emission around each SMBBH. We calculate variations of emission line properties for different eccentricities and orientations of SMBBHs' orbits and mass ratios of black holes. We examine how these parameters influence time variability in total line flux and line shifts.