J121a **Dynamical Modeling of the Be/BH Binary AGL J2241+4454**

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Be stars are massive stars with cirmumstellar disks. About one half of high-mass X-ray binaries consist of a Be star and a neutron star in a wide and generally eccentric orbit. In a stark contrast to the abundant Be-neutron star binaries, no Be-black hole binary had been found until quite recently Casares et al. (2014) established that AGL J2241+4454, for which the optical counterpart is a B1.5-2IIIe star, hosts a black hole (BH) of mass in the range $3.9 - 6.8\,M_\odot$. The orbit is wide ($P_{\rm orb} = 60.37\,{\rm d}$) and almost circular ($e \sim 0.1$). The systems has been detected in the high energy gamma-ray ($> 100\,{\rm MeV}$) band at the orbital phase $\sim 0.75 - 0.8$ (Lucarelli et al. 2010). In X-rays, it is in quiescence at $L_{\rm X} = (3.7 \pm 1.7) \times 10^{31}\,{\rm erg\ s^{-1}}$ (Munar-Adrover et al. 2014), which is extremely low compared to the typical quiescent luminosity $10^{33-34}\,{\rm erg\ s^{-1}}$ of Be-NS binaries.

In order to clarify the reason why AGL J2241+4454 is extremely faint in X-rays, we have performed 3D SPH simulations of this system. Our initial results show that, being more strongly truncated, the Be disk is smaller than in Be-NS binaries with the same parameters and that the peak mass-accretion rate for a typical Be disk density ranges between $(0.7 - 3.8) \times 10^{-11}\,M_\odot\ {\rm yr^{-1}}$ depending on the angles characterizing the disk tilt. Our result is consistent with the observed X-ray luminosity only if the accretion flow is radiatively inefficient (the standard type of accretion is ruled out) and the Be disk density is lower than a typical value by a factor of several. The structure of the accretion flow will also be discussed briefly.