

The Accretion Disk Emission Model in the Symbiotic Star RR Telescopii

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The close similarities found in spectroscopy and morphology have lead many researchers to propose evolutionary links between symbiotic stars and bipolar protoplanetary nebulae(BPPNe). From recent hydro dynamical computations, for a detached binary system often found in BPPNe, it has been proposed that the formation of an accretion disk around the hot star can be induced from the dusty wind accretion processes. In this work, it is argued that in the symbiotic star RR Telescopii the existence of an accretion disk around the hot companion is strongly implied by the characteristic features exhibited by the Raman-scattered O VI lines around 6830Å and 7088 Å. High degrees of polarization and double-peak profiles in the Raman-scattered lines and single-peak profiles for other emission lines are interpreted as line-of-sight effects, where the H~I scatterers near the giant see an incident double-peak profile and an observer with a low inclination sees single-peak profiles. We discuss the evolutionary links between symbiotic stars and bipolar protoplanetary nebulae and conclude that the Raman scattering processes may play an important role in investigation of the physical properties of these objects.