

Axions are possible Dark Matter candidates, with their existence and mass range to be explored. It was known that if the Axion Compton Wavelength is comparable to the size of a rotating black hole, part of the black hole rotational energy will transfer to the Axion field around the black hole by the Superradiance mechanism and pump up field amplitude. In this talk I will discuss several astrophysical consequences associated with a black hole with Axion cloud, in addition to possible gravitational wave emission from the cloud. This includes the existence of gravitational floating orbits around the cloud, possible multi-body interaction between extreme-mass-ratio inspiral objects, and enhancement of tidal capture rate for extreme mass-ratio inspirals, etc.