Multiwavelength properties of gamma-ray-loud binary systems

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Gamma-ray-loud binary systems form a newly identified class of X-ray binaries in which either accretion onto a compact object (a neutron star, or a black hole), or the interaction of an outflow from a compact object with the wind and radiation, emitted by a massive companion star, produces very-high energy (VHE) gamma-ray emission. Three such systems, PSR B1259–63, LS 5039 and LSI+61 303, have been firmly detected as persistent or regularly variable TeV gamma-ray emitters. The origin of the high-energy activity of the sources is not clear. It is possible that the three binaries detected in the gamma-ray band are fundamentally different from the accretion-powered X-ray binaries. In fact, one of the three gamma-ray loud binaries known so far, the PSR B1259–63, is known to be powered by the rotation energy of a young pulsar (instead of accretion). The similarity of the spectral energy distributions of the three gamma-ray-loud binaries makes its interesting to apply the "pulsar model" to the two other systems as well. In my talk, I will review the multi wavelength properties of these systems, including the latest X-ray observations by XMM, Chandra, Swift and Suzaku satellites. I will attempt to explain the observed time and spectral variability of these systems.