BINARY EVOLUTION IN ACCRETION DISKS AND OTHER MEDIA

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Binary systems, such as those discovered by the LIGO-VIRGO collaboration, have opened a new window for testing astrophysical systems. Allied with electromagnetic detections, we have unprecedented ways of looking at the physics of these systems. Usually, binary systems are considered to be in a vacuum, where they tend to lose eccentricity due to the emission of gravitational waves. However, astrophysical environments can be extremely rich and thus generate detectable signatures through binary systems. In this seminar, we revisit the physics of binary systems considering that the binary system is immersed in a medium. We show that binary evolutions can considerably be affected by dynamic frictional and accretion forces generated by the medium. Furthermore, in asymmetric binary systems, we show that the center of mass can acquire considerable velocities, capable of reaching the escape velocity of some galaxies.