

Growth of supermassive black hole seeds in ETG star-forming progenitors via gaseous dynamical friction: perspectives for GW detections

Tuesday, January 14, 2020 10:00 AM (15 minutes)

In this talk I will discuss a novel mechanism to grow supermassive black hole seeds in star-forming ETG progenitors at $z > 1$. This envisages the migration and merging of stellar compact remnants, via gaseous dynamical friction, toward the central regions of such galaxies. I will show that this process can build up central BH masses of order $10^4 - 10^6 M_{\text{sun}}$ in a timescale shorter than 10^8 yr, providing heavy seeds before standard disk accretion takes over to become the dominant process for further BH growth. I will discuss the perspectives to detect the merger events between the migrating stellar remnants and the accumulating central supermassive BH via gravitational wave emission with future ground and space-based detectors such as the Einstein Telescope (ET) and the Laser Interferometer Space Antenna (LISA).

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Session Classification: Morning session