

Massive black hole triplets as LISA sources

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Massive black hole binaries (MBHBs) are expected to form at the centre of merging galaxies during the hierarchical assembly of the cosmic structure, and are expected to be the loudest sources of gravitational waves (GWs) in the low frequency domain. However, because of the dearth of energy exchanges with background stars and gas, many of these MBHBs may stall at separations too large for GW emission to drive them to coalescence within the Hubble time. Triple MBH systems are then bound to form after a further galaxy merger, triggering a rich dynamics that can eventually lead to MBH coalescences. I will show that the complex 3-body dynamics can lead to the formation of highly eccentric binaries, hence leading to copious GW energy losses. I will analyse the eccentricity distribution of 3-body induced coalescing binaries, paying particular care to those sources that can emit an observable GW signal in the LISA band.