

After a galaxy merger, dynamical friction from background stars and gas causes the MBHs to sink towards the center.

resolution

## 1 pc

After the binary becomes bound, it will evolve via stellar scattering. If an intruder BH is brought in via a subsequent galaxy merger, triple interactions can also contribute to the hardening.

## 10<sup>-2</sup> pc

On these scales, the binary can be further hardened by viscous drag from the circumbinary disk.

## 10<sup>-6</sup> pc

At these seperations,
Gravitational waves
will dominate
binary hardening
eventually leading to
their coalescence.