

KETJU: Post-Newtonian supermassive black hole dynamics in galaxy simulations

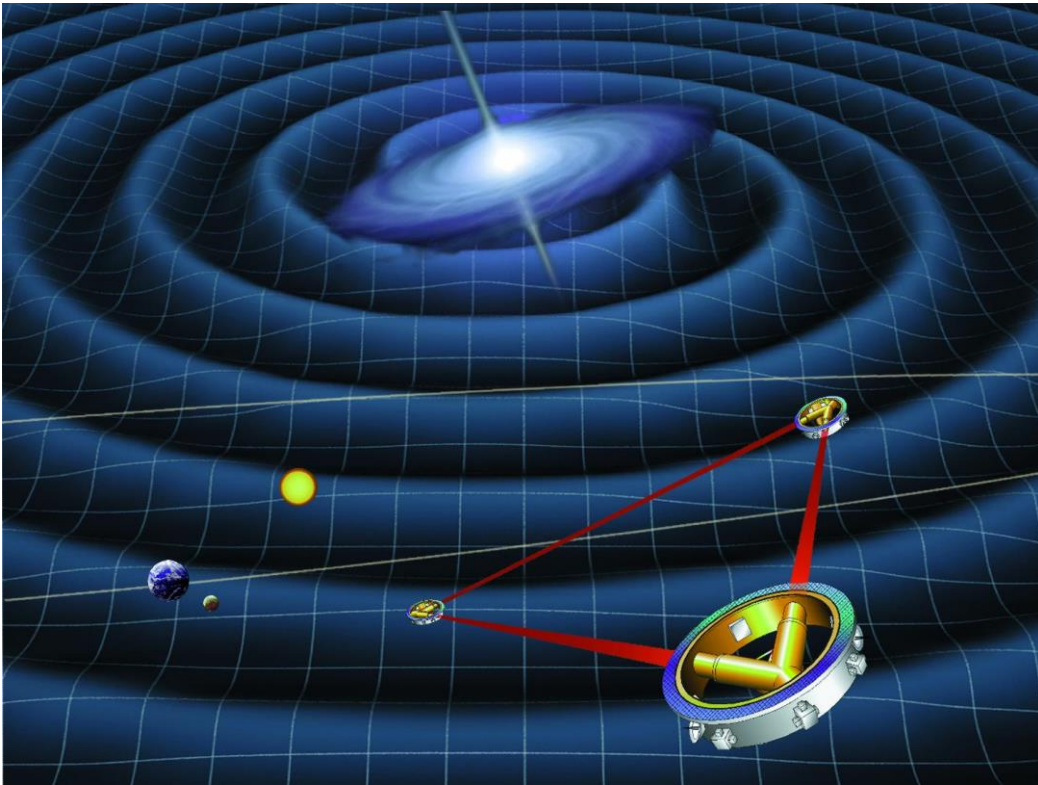


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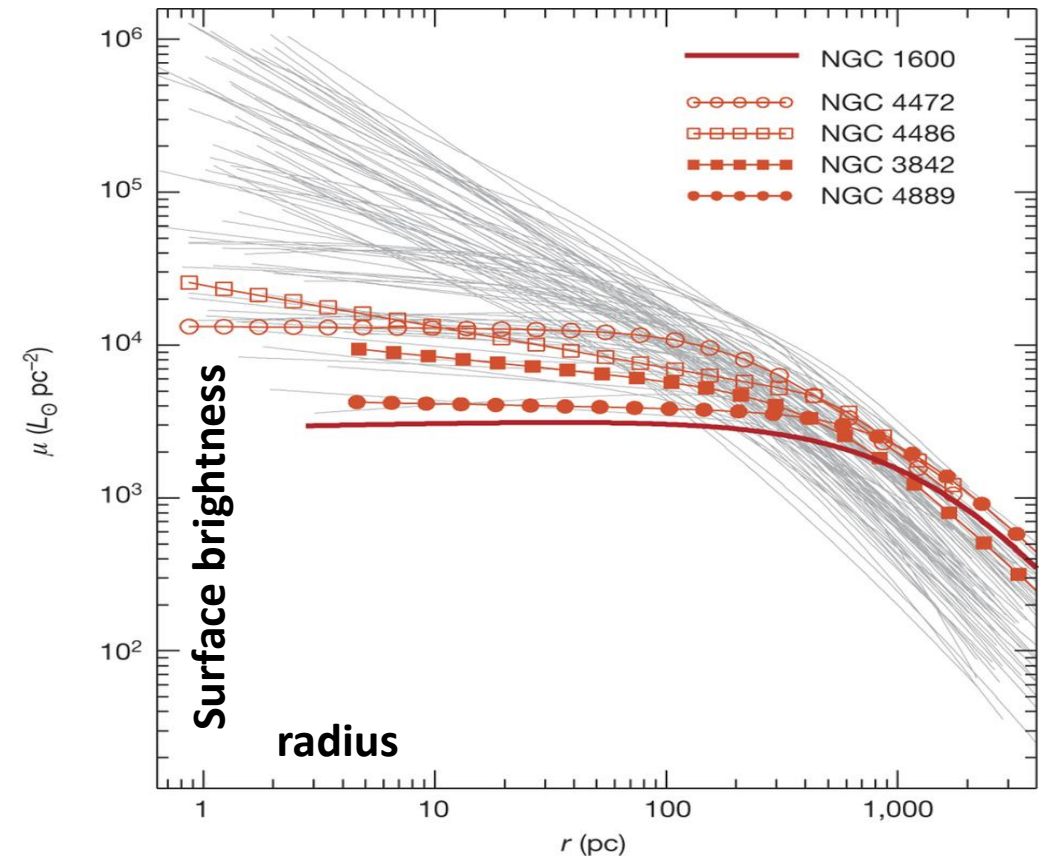
Astrophysical motivation: supermassive black hole (SMBH) binaries

Gravitational wave astronomy



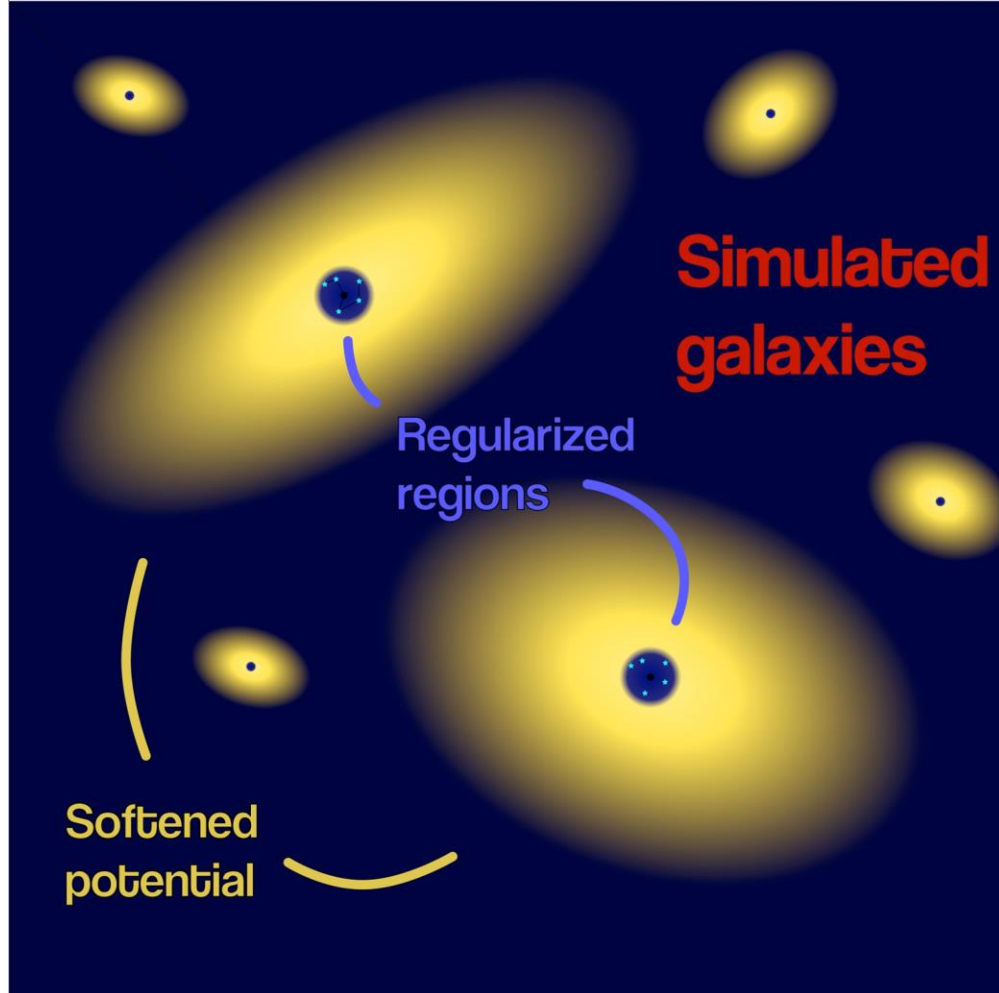
SMBH binary merger rates for future gravitational wave detectors in space

Evolution of massive elliptical galaxies



Some massive elliptical have central cores: stars are missing, evidence for a past SMBH binary?

The central idea of KETJU code



At large scales: a fast gravity+hydrodynamics simulation code GADGET-3

Near SMBHs: a super-accurate integrator with a high spatial and temporal resolution and Post-Newtonian corrections from GR

The only code which combines baryonic galaxy formation physics with super-accurate SMBH dynamics