



SCUOLA
NORMALE
SUPERIORE

SEMINARIO DI COSMOLOGIA

Mercoledì 27 marzo 2019
ore 15:00

Scuola Normale Superiore
Pisa
Aula Marie Curie

-
Daisuke Toyouchi
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terrà un seminario dal titolo:

“Gaseous dynamical friction onto moving massive BHs under dusty environment”

Abstract:

“Many previous studies based on hydrodynamical numerical simulations have suggested that gaseous dynamical friction is an essential mechanism for orbital evolution of massive black holes (MBHs) during gas-rich galaxy mergers and an important channel for formation of gravitationally bound MBH binaries at the centers of merged galaxies. However, most of these studies simply assumed Bondi-Hoyle-Littleton (BHL) accretion, supposing no radiation from moving BHs. In this study, we investigate the influence of radiative feedback on the hydrodynamics around moving BHs by performing 3D-RHD simulations. As a result, we find that a massive dense shell forms at the upstream side of ionized bubble around moving BH, and consequently it can gravitationally accelerate the BH forward, contrary to the expectations in BHL accretion. However, we also find that in sufficiently dense environment, upstream shells are quickly pushed away downward by significant ram pressure from flowing gas. Then, gas accretion proceeds in a similar manner to BHL accretion, consequently leading to strong dynamical friction. In this case, MBHs could migrate to the galaxy centers on very short time scale of ~ 10 Myr, implying the quick formation of MBH binaries”.

Tutti gli interessati sono invitati a partecipare.