Cosmological mass transport on galactic nuclei and the growth of high-z quasars

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By using cosmological hydrodynamic simulations, we have studied how supernovae (SNe) and active galactic nuclei (AGN) feedback affect the mass transport (MT) process in high-redshift (z ? 6) galaxies and what the consequence of these processes is on black hole (BH) growth. Intergalactic gas falls through cooling flows onto the outer galactic edge. There, the pressure gradient torque associated with turbulent motions is the main factor responsible for MT in the galactic disk beyond the central ?100 pc. At the central galactic region, gravitational torque tends to be more important at high redshift due the higher mass concentration. These two phenomena, i.e., gravitational and hydrodynamic torques, working together are able to produce accretion rates of order ?1 M ? year ?1 at few parsecs from the galactic center, allowing an efficient BH fueling in high-redshift galaxies. Our results show that, whereas SNe or AGN feedback alone is not able to quench the BH growth, SNe and AGN feedback working together in tandem are able to efficiently quench the BH growth.