

Astr 1020: Test 4 Study Guide

Chapter 21: GALAXY EVOLUTION

- accretion of gas clouds in proto-galaxies
- role of angular momentum
- role of density
- collisions and mergers of galaxies
- elliptical and starburst galaxies from mergers
- supermassive black holes (SMBHs) and Active Galactic Nuclei (AGN)
- AGN luminosity from accretion, outflows in jets
- quasars, Seyfert galaxies, radio galaxies, BL Lac galaxies
- effects of orientation with respect to accretion disk around
- Event Horizon Telescope image of the SMBH in M87
- connection between SMBH and galaxy bulge masses
- formation of SMBHs

Chapter 22: COSMOLOGY

- age of the universe from Hubble's constant
- radiation and matter eras in history of universe
- pair production/annihilation of elementary particles
- fundamental forces and their unification at high temperature
- fundamental particles of nature
- eras in the history of the universe as it expanded and cooled
- cosmic inflation
- release of cosmic microwave background radiation
- observations of the cosmic microwave background radiation
- atoms made during the Big Bang
- structure in the cosmic microwave background radiation and implications for the total mass/energy
- stages of the history of the Universe in time