

Tel Aviv University , Physics Colloquium - Sackler Lecture in Astronomy

Prof. Wendy L. Freedman

Carnegie Observatories

Melamed Lecture Hall

Recent Measurements of the Hubble Constant

Accurate distances remain central to a number of fundamental problems in astrophysics and cosmology. A more accurate measurement of the Hubble constant is critical for providing independent constraints on dark energy, the geometry, and matter density of the universe. The increased precision of cosmic microwave background fluctuations (most recently with the Planck satellite) make these direct comparisons even more critical, given the physical degeneracies amongst different cosmological parameters. There has been fundamental progress over the last couple of decades in measuring extragalactic distances. The most recent decade has seen an improvement in precision from 10% to 5%. The upcoming decade promises robust distances and a measurement of the Hubble constant to a few percent accuracy. I will describe the Carnegie Hubble Program (CHP) to measure the Hubble constant to 3% accuracy using the Spitzer satellite, the Hubble Space Telescope and the ground-based Magellan telescopes.