

# UIC COLLOQUIUM

## Department of Physics

**Wednesday, February 5, 2020**

**“Tension in the Hubble Constant”**

**Professor Wendy Freedman**

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There has arisen a tension in the value of the Hubble constant measured locally (based on Cepheids and Type Ia supernovae) with that inferred from measurements of the cosmic background radiation, assuming the standard cosmological model. I will present new results from the Carnegie-Chicago Hubble Program (CCHP), the goal of which is to independently measure a value of the Hubble constant to very high precision and accuracy. We have built an entirely new extragalactic distance scale using tip of the red giant branch (TRGB), based on observations with the Hubble Space Telescope Advanced Camera for Surveys. Our supernova sample comes from the Carnegie Supernova Project, carried out at Las Campanas, Chile. Our value of the Hubble constant,  $H_0 = 69.8$ , with statistical and systematic uncertainties of 0.8 and 1.7 km/sec/Mpc, respectively, falls midway between the value obtained from the Planck Cosmic Microwave Background analysis, and that obtained using Cepheids. I will address the uncertainties, and then discuss the current tension in  $H_0$ .

**The Department of Physics Colloquium will be held at 3pm in 238 SES.**

*\*Refreshments will be served from 2:45 pm to 3pm outside of room 238 SES*