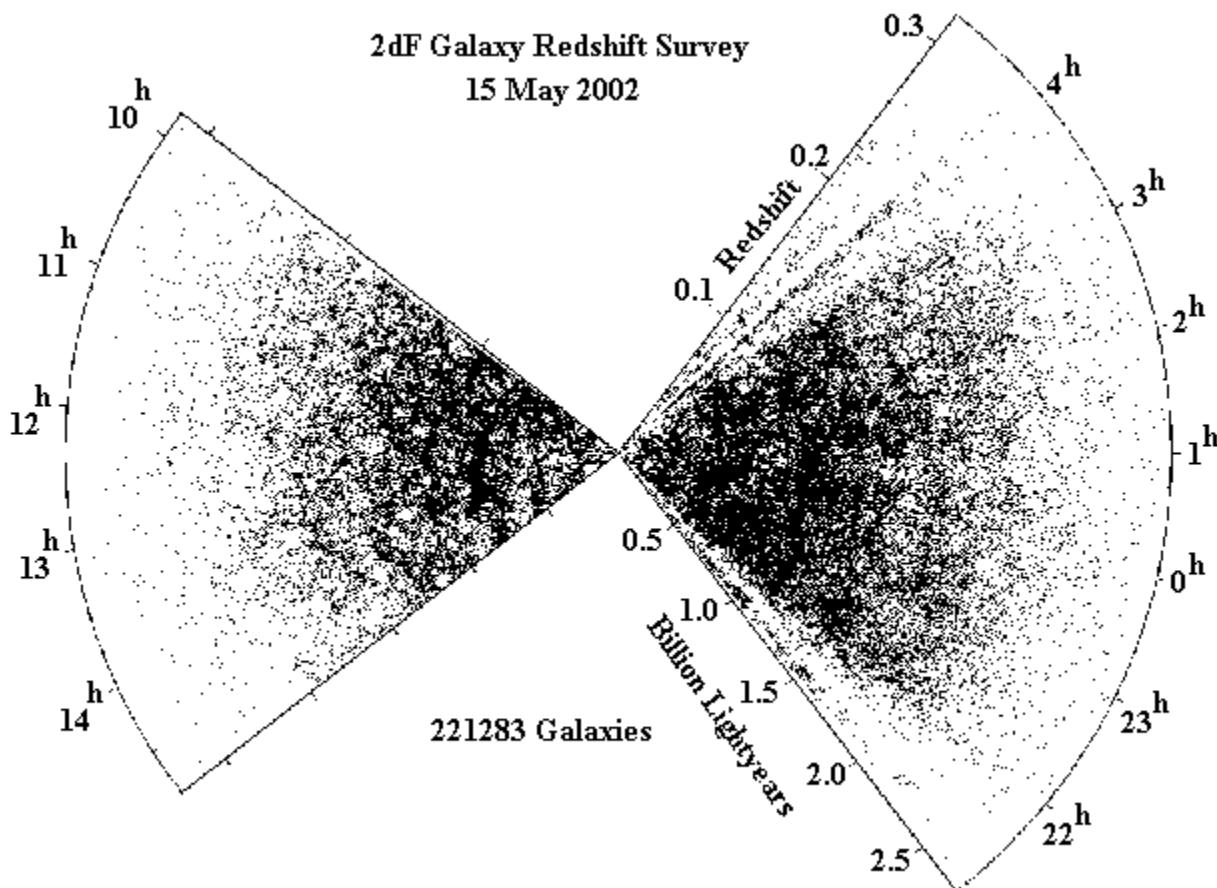


November 2002 Meeting: Structure of the Universe



Trish Henning

New Mexicans for Science & Reason heard Associate Professor Trish Henning (UNM, Director, Institute for Astrophysics) on "The Structure of the Universe." The meeting was on November 13th. Trish started by mentioning the distribution of mass. Where is it? What is the difference between luminous mass and so-called "dark matter"? We can see nearby galaxies (Andromeda in the northern hemisphere, the Magellanic Clouds in the southern), and in the last few decades, we have learned quite a bit about the distribution of galaxies through the universe. One of the big surprises was the discovery of the local super-cluster about 50 years ago. Since then, better and broader surveys have been performed, revealing huge voids between clusters of galaxies.



From the 2dF Galaxy Redshift Survey, showing voids and structure over billions of light years

Trish talked about how the expansion of the universe is used to estimate position of galaxies from observed speed, which is given by the Doppler shift of galactic emissions. Because gravitational interactions can act against the motion of expansion (locally, at least), clusters of galaxies tend to get smeared out in Doppler-shift plots. Trish talked about the difficulty of seeing galaxies through the disc of the Milky Way, and how radiotelescopes use the hydrogen 21-cm line to penetrate galactic dust. She talked about ongoing galactic surveys, including the one she works on in Australia, and New Mexico's Sloan Digital Sky Survey. It looks like we're finally able to discern the scale of galactic clustering across the universe.

NMSR thanks Trish Henning for a delightful presentation.