The ALFALFA Census of Gas-Bearing Galaxies at z=0 Martha Haynes Cornell University

Capitalizing on the huge collecting area of the Arecibo telescope and the survey capability of the 7-beam Arecibo L-band Feed Array (ALFA), the Arecibo Legacy Fast ALFA (ALFALFA) extragalactic HI 21cm line survey is producing a census of HI-bearing objects out to z < 0.06. ALFALFA provides the first robust count of gas-bearing halos over a cosmologically significant volume. I will review first results of a coordinated multiwavelength program designed to probe how some massive galaxies maintain huge gas reservoirs without converting their gas into stars and how isolated low mass halos are able to retain some HI gas despite their fragile thermal state and shallow potential wells.