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Non-Specialist talk - Toward the Great Quest to Decipher Galaxies: The WISE High-Resolution Galaxy Image Atlas

Thursday, 12 July 2012 11:00 (40 minutes)

Abstract content
 (Max 300 words)

After eight months of continuous observations, the Wide-field Infrared Survey Explorer (WISE) mapped the entire sky at mid-infrared wavelengths. All-sky image atlas and source catalogue are now available to the community through the Infrared Science Archive. Utilizing the WISE raw image frames to create enhanced data products, we have begun a dedicated WISE High Resolution Galaxy Atlas (WHRGA) project to fully characterize large, nearby galaxies and produce a legacy image atlas and source catalogue.

In this presentation I will demonstrate the early results of the WHRGA-project for a sample of 17 galaxies, chosen to be of large angular size, diverse morphology, and covering a range in color, stellar mass and star formation. It includes many familiar galaxies, including M51, M81, M87, M83, M101, IC342. Photometry and surface brightness decomposition is carried out with special super-resolution processing, achieving spatial resolutions similar to that of Spitzer-IRAC.

We highlight and showcase the detailed results of NGC 1566 and M83, comparing the WISE/Spitzer results with the ATCA HI gas distribution and GALEX UV emission, tracing the evolution from gas to stars. We discuss the construction of a complete mid-infrared catalog of galaxies, and its complementary multiwavelength role to HI observations - from the MeerKAT and ASKAP Pathfinders - to study the assembly and evolution of galaxies in the local universe.

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