

DEPARTMENT OF PHYSICS & ASTRONOMY

Physics & Astronomy Colloquium

Dr. Dillon Dong

National Radio Astronomical Observatory

3:30 - 4:30 p.m. | Tuesday, March 11

Science Building 234

4D Radio Astronomy with the VLA Sky Survey

In October 2024, the VLA Sky Survey (VLASS) completed its third full epoch, conducting sensitive, high-resolution 3 GHz observations of all $\sim 34,000$ deg² accessible to the VLA for the third time since 2017. Thanks to the efforts of the VLASS team, all observations have now been calibrated and “quicklook” imaged, enabling high-quality, multi-epoch measurements of $\sim 99\%$ of the surveyed area. The $\sim 106,000$ quicklook images represent a ~ 2 order of magnitude reduction in volume from the raw visibilities, transforming a $\sim$ petabyte-scale problem to a straightforwardly manageable ~ 5 TB dataset. In this talk, I will discuss several ongoing efforts to distill these data further (into data products and science) and make them readily available to all. This will include a preview of the VLASS transient, variable and persistent source catalogs and efficient/robust means of crossmatching these sources to multi-wavelength counterparts, and a new VLASS image cutout server capable of delivering cutouts at arbitrary locations in ~ 100 milliseconds per coordinate. I will additionally talk about the vast luminosity range of synchrotron-emitting sources and what we might learn from our ever-more-complete sampling of GHz-frequency radio photons in space and time.

Refreshments at 3 p.m. | SC 103

