APR21-2021-000521

Abstract for an Invited Paper
for the APR21 Meeting of
the American Physical Society

FRB Populations

PRAGYA CHAWLA, McGill University

Fast radio bursts (FRBs) are highly dispersed, millisecond-duration radio transients of unknown physical origin. Over the past decade, population studies of FRBs have been challenging to undertake due to the small number of known sources detected with different telescopes and detection pipelines. However, we are now in the new era of interferometric searches, with the large FRB samples detected by the Canadian Hydrogen Intensity Mapping Experiment (CHIME) and the ASKAP telescope being well-suited for such studies. While determining the brightness distribution and volumetric rate of these bursts can allow for constraints on progenitor models, the observed propagation effects can enable their use as probes of large-scale structure and provide an opportunity to study distributions of electrons and magnetic fields in the universe. In this talk, I will present an overview of the recent population studies that have allowed us to understand the FRB phenomenon in greater detail. I will also present preliminary results from the first CHIME/FRB catalog, particularly the constraints on the nature of FRB host galaxies and local environments derived by interpreting the observed dispersion and scattering properties.