BOSTON UNIVERSITY

Boston University College of Arts & Sciences
Institute for Astrophysical Research

2021—2022 ASTROPHYSICS SEMINAR SERIES

New Supernova Remnant Candidates in the MeerKAT Galactic Plane Survey

It is well-known that the census of Galactic supernova remnants (SNRs) is incomplete. This incompleteness is thought to arise from difficulties locating Galactic SNRs due to confusion (mainly with HII regions) and a lack of sensitivity. Recent works have shown that sensitive radio continuum data, when combined with data in the mid-infrared (MIR), can identify new SNR candidates. While thermally-emitting HII regions have strong MIR and radio continuum emission, non-thermally emitting SNRs are deficient in MIR emission. We here discuss our recent work with new 1.3 GHz South African Radio Astronomy Observatory (SARAO) MeerKAT Galactic Plane Survey continuum data to identify new SNR candidates in the inner Galaxy. The MeerKAT data boast an angular resolution of 8" and are sensitive to a wide range of size scales, making them ideal for SNR searches. In our preliminary research, we have identified ~180 new SNR candidates and objects of interest. SNR candidates identified using the MIR/radio continuum criterion require additional information to confirm that they are true SNRs, namely determination of negative spectral indices, detection of polarized radio continuum emission, or association with high-energy emission. If confirmed, these SNR candidates would increase the known Galactic SNR population by ~50%.

Monday, November 22nd

3:30 - 4:30 p.m.

See website for Zoom details

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