IAF SYMPOSIUM ON ONGOING AND NEAR FUTURE SPACE ASTRONOMY AND SOLAR-SYSTEM SCIENCE MISSIONS (A7)
Science Goals and Drivers for Future Exoplanet, Space Astronomy and Space Physics (2)

Author: Ms. Arzoo Noorani
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates

Prof. Ilias Fernini
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates
Mr. Abdollah Darya
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates
Mr. Mohammad Musharraf
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates
Prof. Hamid Al Naimiy
Sharjah Academy for Astronomy, Space Sciences, and Technology (SAASST), United Arab Emirates

A 1.4 GHZ SURVEY OF 46 GIANT RADIO SOURCES

Abstract

This study presents a statistical radio analysis of 46 of the largest Giant Radio Sources (GRS) in the Kumicz et al. 2018 catalog, which contains 349 GRS in total. Our sample selection criteria are based on the location, the resolution, and the sensitivity limitations of the future Sharjah Very Long Baseline Radio Interferometer (SVLBRI) located in the United Arab Emirates. This new 1-km radio interferometer that operates at 1.4 GHz will have an angular resolution of about 0.68 arcmin. It will be able to observe GRS with projected linear sizes greater than 0.7 Mpc. Recent high-resolution all-sky radio surveys have shown an increase in the total number of GRSs present in the universe. However, we are currently unable to provide a clear, unequivocal explanation as to why some of these radio sources are of such giant size in the first place. It must be said, however, that GRSs are very interesting objects that deserve to be studied extensively. Radio sources' general formation and evolution depend on various processes, and it is important to study these processes to gain a full understanding of them. This paper discusses GRSs based on the criteria of flux density $\geq$450 mJy at 1.4 GHz, angular size $\geq$4.5 arcmin, and declination (J2000) $\geq$ -30 degrees. Additionally, we present the sources' principal parameters (radio morphology, projected linear size, luminosity, redshift, and total flux density).