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Author: Prof. Ilias Fernini
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates, ifernini@sharjah.ac.ae

Ms. Asmaa Alhameed
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates, aalhameed@sharjah.ac.ae
Ms. Arzoo Noorani
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates, u00039804@sharjah.ac.ae
Prof. Hamid Al Naimiy
Sharjah Academy for Astronomy, Space Sciences, and Technology (SAASST), United Arab Emirates, alnaimiy@sharjah.ac.ae
Ms. Ayesha Javed
Sharjah Academy for Astronomy, Space Sciences and Technology (SAASST), United Arab Emirates, U00031203@sharjah.ac.ae

OBSERVING GIANT RADIO SOURCES AT 1.4 GHZ

Abstract

This paper presents 1.4 GHz radio observations of a sample of 7 known Giant Radio Sources (GRSs) with redshift less than 0.3 conducted with the Sharjah 5-m radio telescope located at the Sharjah Academy for Astronomy, Space Sciences, and Technology (SAASST) in the United Arab Emirates. GRSs are described as extragalactic radio sources with projected linear sizes greater than 0.7 Mpc. The main goal is to study the correlation between the radio core prominence and the total radio luminosity of these GRSs. This will help us to build better radio source models to understand these giant radio sources' evolution. The radio images and spectra of these 7 sources were created using the RadioUniversePRO Software that controls the 5-m radio telescope. The analysis was performed using the NASA FITS Viewer and Python to obtain the radio characteristics (radio morphology, flux density, and Hydrogen line). Each GRS was observed for 6-8 hours with a resolution of about three degrees. Our paper showcases the methodology for observing and analyzing extragalactic radio sources using a small radio telescope (<10-meter). The SAASST 5-m radio telescope is part of the University of Sharjah radio astronomy program.