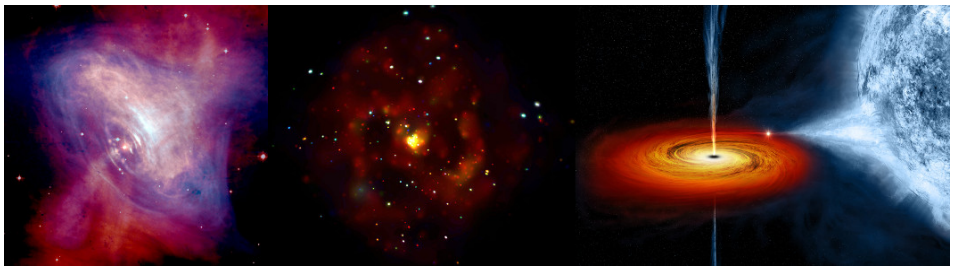

Contribution ID: **85** Type: **not specified**

Discovery of giant radio quasars from TGSS-ADR1: new sample and associated AGN properties

Tuesday, April 4, 2023 5:00 PM (10 minutes)

Giant radio quasars (GRQs) are radio-loud active galactic nuclei (AGN) that propel megaparsec jets with projected linear sizes of more than 0.7 Mpc. We report the discovery of a sample consisting of more than a hundred giant radio quasars at high redshift (z >= 1) through crossmatching the TIFR GMRT Sky Survey Alternative Data Release 1 (TGSS ADR1). Due to the good sensitivity and high resolution of TGSS at 150 MHz, we have detected fainter and larger samples than previous ones. We have identified the highly reliable optical or infrared cores of the detected GRQs using the likelihood ratio method. We investigated various radio properties of these sources, including angular and projected linear size, spectral index, total radio power, jet kinetic power, radio core prominence, and integrated and core radio luminosity. In optical and infrared wavelengths, we estimated the black hole mass and accretion rate of newly discovered GRQs. The spectral index of these GRQs is found to be steep or ultrasteep due to high redshift. We found no significant differences between GRQs and smaller radio quasars (SRQs) based on their spectral properties. It is found that SRQs have higher total radio power, radio core power, jet kinetic power, core dominance factor, and Eddington ratio compared to GRQs. The high core dominance factor of SRQs indicates that they are closer to the line of sight than GRQs. We also find a correlation of the accretion disc luminosity with the radio core and jet power of GRQs, which provides evidence for disc-jet coupling. However, we show that the majority of extended radio quasars belong to a quasar population of evolved AGNs with enormous black hole masses and modest accretion rates.

Presentation Type

Oral

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