A MIGHTEE investigation of radio-quiet AGN

Star formation vs AGN feedback activity

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Introduction

We are using multi-wavelength data to determine the fraction of radio emission that is as a result of star formation versus accretion activity in radio-quiet active galactic nuclei (AGN). This is done primarily through data acquired from the ”Meer” Karoo Array Telescope (MeerKAT) and the Southern African Large Telescope (SALT). Data is attained from the COSMOS field.

MIGHTEE survey

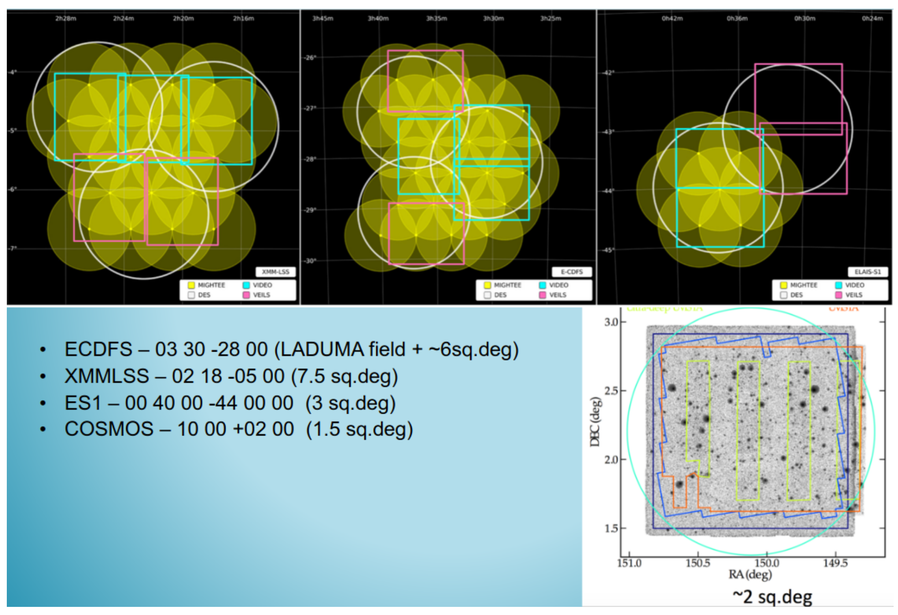

Figure 1: A look into the different areas of the MIGHTEE field. Slide credit: Matt Jarvis (MeerKAT International Gigahertz Tiered Extragalactic Exploration survey).

Optical/Near-Infrared (NIR) selection

This is done so as to separate stellar contamination in order to retain contributions made by pointlike AGN candidates.

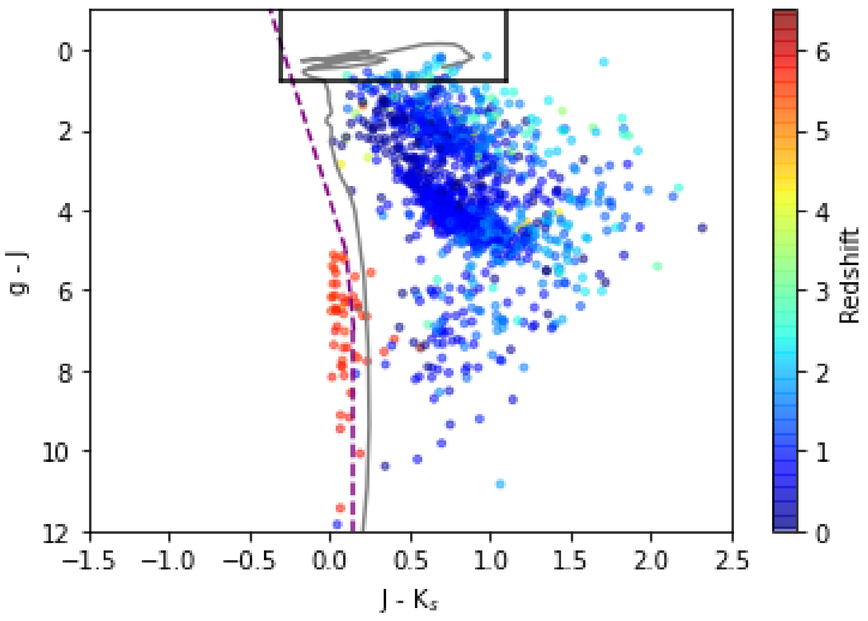

Figure 2: A gJK_s colour selection plot of the AGN population being investigated, coloured by redshift. The black box represents quasars that are distinguishable from other galaxies, while the grey line is the quasar track that separates AGN from sources with stellar gJK_s colours (White et al. 2015).

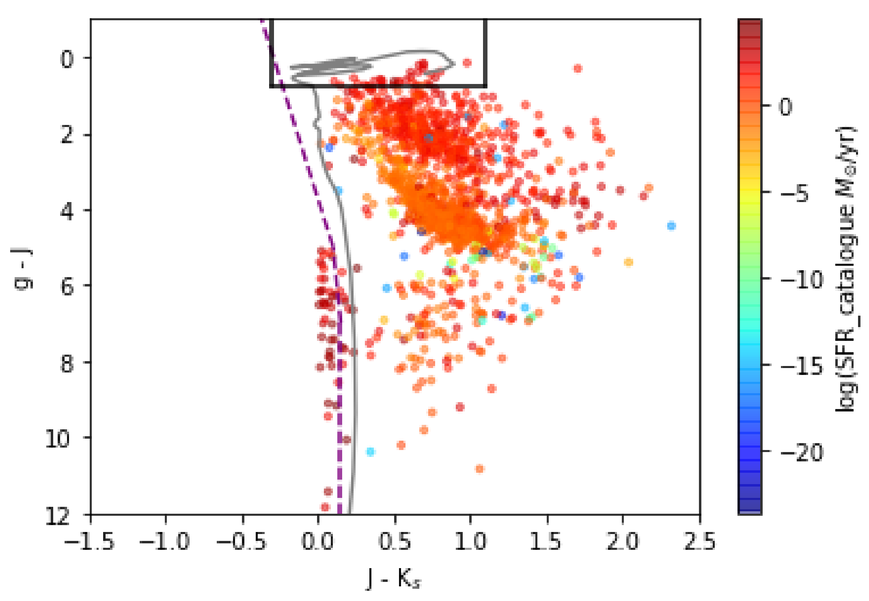

Figure 3: gJK_s selection, coloured by star formation rate (SFR), determined from our optical/NIR catalogue.

Radio flux-densities and SFR estimates

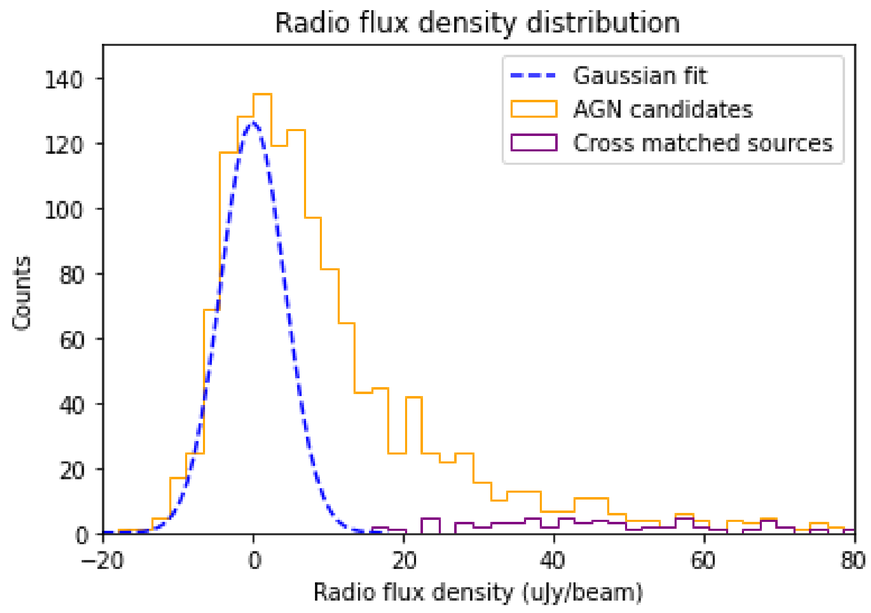

Figure 4: Radio flux-density of selected sources along with the histogram’s Gaussian distribution and the cross matched sources (5σ detections).

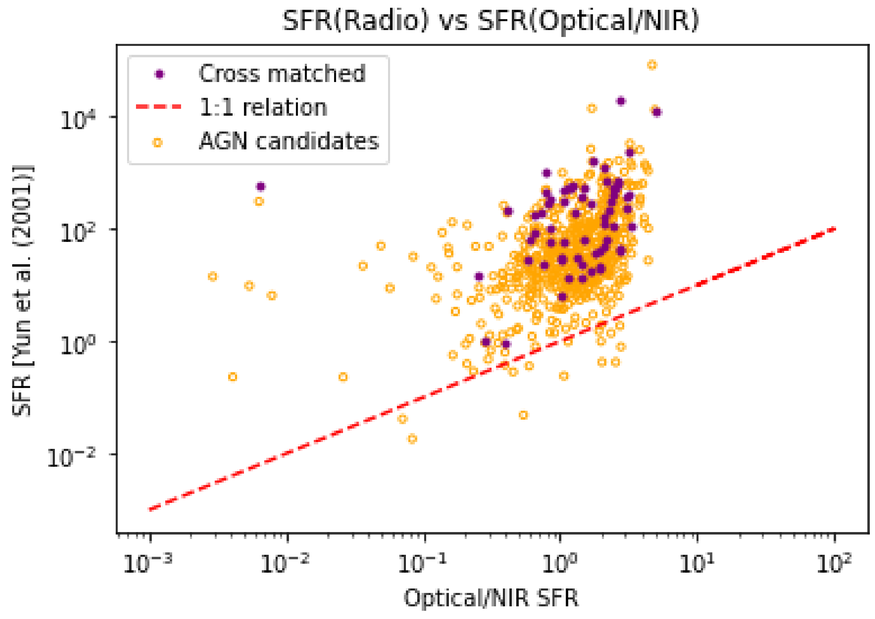

Figure 5: Comparison of the SFR determined through radio luminosity, found in Yun et al. (2001), with that obtained through optical/NIR template fitting.