

# Using polarized radio emission to understand the dynamics of the NGC 741 galaxy group

## Abstract

While AGN and mergers are thought to play important roles in group and cluster evolution, their effects in galaxy groups are poorly understood. We propose to observe the NGC~741 group, which hosts both an old central radio galaxy and a spectacular infalling head-tail source. Strongly-bent jets and a 110-kpc radio tail suggest that NGC~742 is moving supersonically, undergoing stripping and driving shock heating, while the group-dominant galaxy NGC~741 possesses a single faint relic lobe. We propose MeerKAT L-band full-polarization observations of the group with the goals of 1) determining the effect of the bow shock on the intra-group medium (IGM), 2) understanding the complex structure of the head-tail source and the IGM gas motions which have shaped it, and 3) constraining the age of the relic radio lobe.