

Magnetic field injection through galaxy interactions

Abstract

Magnetic fields are present on all scales of the Universe. Within galaxies, they can influence the evolution of their host through their effect on star formation. Within clusters, they can alter the heat conduction and give rise to spectacular diffuse radio sources. But how do they get there? Very recently, an inter-galactic, neutral hydrogen tidal tail has been discovered to depolarize radio emission from Fornax A. This finding suggests that cold gas could drive magnetic fields into the environment during galaxy interactions, opening new scenarios on the magnetic field injection into the intra-group and intra-cluster medium.

With this proposal, we aim at studying the only other system of this kind available in the literature: the NGC 7582 triplet. Our goal is to determine whether the neutral hydrogen tails associated with the triplet are depolarizing a radio galaxy lobe detected in the background. Such behavior would confirm a new viable way of injecting magnetic fields into the ambient medium.