

# Hunt for Jellyfish Galaxies' Magnetic Fields

## Abstract

Jellyfish galaxies are extreme examples of galaxies undergoing strong ram pressure stripping (RPS) in clusters. They represent a transitional phase between infalling star-forming spirals and quenched early-type galaxies in clusters. We propose the first large investigation of magnetic field (MF) properties of jellyfish galaxies by observing 11 galaxies. This project will establish the origin of the large-scale MF present in these objects, will test the 'magnetic draping scenario' found in one previous observation of an individual galaxy, and will determine how frequent such polarized tails are. In combination with already existing ancillary data (ionized, molecular, and hot gas, stellar properties, kinematics), we will be able to investigate the role of the MF for the star formation (SF) activity occurring in the stripped tails and the connection with the multi-phase stripped gas. Moreover, the data obtained will provide crucial input for state-of-the-art magneto-hydrodynamic simulations. The proposed program includes the study of the neutral gas component, cosmic ray lifecycle, and polarization properties in the whole field of view.