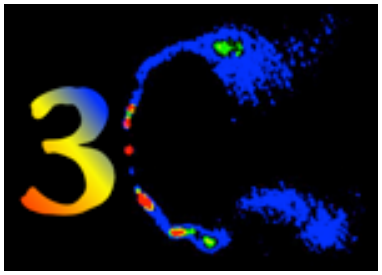

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Feedback in local radio galaxies using optical IFS

Thursday, 19 September 2019 10:10 (20 minutes)

This presentation resume our results using optical integral field spectroscopy of four nearby (z < 0.07) radio galaxies obtained with GMOS in Gemini North and South telescopes (Couto et al. 2013, 2016, 2017,in prep), a series of studies of the gas excitation and kinematics of the sample. The field-of-view probes a circumnuclear region of ~3.5"x5", with average spatial resolution of ~0.6". The galaxies in our sample, Arp 102B, Pictor A, 3C 33 and 4C +29.30 present extended radio jets and have in common signatures of interactions or merger events. For Pictor A, e.g., we find unusually low [N II]6584/Hα ratio (0.15 - 0.25), indicating low metallicity of the gas, not expected in AGNs (Active Galactic Nuclei). This suggests an accretion of gas through an interaction event, in agreement with the tidal tail observed by Gentry et al. (2015). The presence of more than one kinematic component in the galaxies of our sample indicate that feedback is disturbing the gas in the central regions, and this is usually traced by high velocity dispersion and high line ratios. Although we estimate low energetic input of the radio jet in the circumnuclear gas (outflow kinetic power of Ė< 1% Lbol), jet-cloud interaction seems to be connected with extended emission-line regions. 3C 33 present clear signatures of ionized gas being pushed perpendicularly by the radio jet, in a region where high line ratios and an increase of electron temperature and velocity dispersion is observed. We also present resolved diagnostic diagrams for these galaxies using the optical emission-lines, and the comparison with shocks and photoionization models, which suggests more presence of shocks in regions closer to the radio jet, but also contribution of photoionization.

Primary authors: COUTO, Guilherme (Universidad de Antofagasta); Prof. STORCHI-BERGMANN, Thaisa (UFRGS); Prof. ROBINSON, Andrew (RIT); RIFFEL, Rogemar A. (UFSM); KHARB, Preeti (Indian Institute of Astrophysics); LENA, Davide (SRON); SCHNORR-MÜLLER, Allan (UFRGS)

Presenter: COUTO, Guilherme (Universidad de Antofagasta)

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