**Level of the project:**
Masters

**Name of primary supervisor:**
Prof. Matt Hilton

**Institution of supervisor:**
Wits [primary affiliation] ; UKZN [visiting position]

**Contact details of supervisor and co-supervisor:**
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**Project title:**
Star formation and quenching in massive clusters at z ~ 0.8

**Description:**
EMPOWER (Emission line Mapping of the galaxy POpulation in the cosmic WEb Environments; PI: Paola Popesso) is a new ESO survey project being conducted with the KMOS instrument at the VLT. The first observations to be obtained cover the massive z ~ 0.8 galaxy clusters ACT-CL J0528 and J0022. We will use the EMPOWER data to investigate star formation, via Halpha emission maps, as a function of local galaxy environment and clustercentric radius. Since these are among the most massive clusters known at this redshift, the ram pressure due to the intracluster medium is expected to be high, and we expect to see signatures of stripping in the Halpha emission maps of individual cluster galaxies. We may also compare SFR and AGN diagnostics as measured with EMPOWER with other tracers available for these clusters (e.g., from far-IR and radio data). The student will be expected to contribute to pipeline processing of the EMPOWER data to produce spectral data cubes and emission maps. They will lead the analysis for this specific project, and may have the opportunity to conduct visitor mode observations at VLT as part of the EMPOWER team. This project can be extended to PhD.