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Studying gas flows in the SUNBIRD starburst galaxies and LIRGs

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Gas flows are an important aspect of galactic feedback and the regulation of star formation in galaxies. Nearby starburst galaxies and LIRGs provide an extreme environment where feedback and the changes due to it can be studied in great detail. The aim of my project is to search for traces of outflows and inflows in a sample of nearby starburst galaxies and LIRGs in the SUNBIRD survey, and to characterize them using observations of the stellar, and neutral and ionized gas kinematics. The SUNBIRD survey contains over 40 starburst galaxies and LIRGs. Its science goals are to calculate the total SFR in the nearby universe and to perform an in-depth study of star formation in LIRGs. The relationship between the gas flows, star formation and other galaxy properties will be used to study feedback and the fueling of star formation, which in turn will help us to understand galaxy evolution. As a first step, the gas flows were studied using long-slit spectra from the Southern African Large Telescope. I will present preliminary results from this data. The neutral and ionized gas kinematics can be traced through the NaD absorption lines and H α emission line, respectively. We modelled the gas with multiple components of Gaussian and Gauss-Hermite functions, and the stellar component was modelled with pPXF. We then compared best-fit models, the gas and stellar kinematics as well as emission-line ratios in order to identify and characterize the gas flows in and around these galaxies.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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