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DIAGNOSTIC DIAGRAM WITH POLYCYCLIC AROMATIC HYDROCARBONS IN DIFFERENT TYPES OF GALAXIES

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In this contribution, we investigate the energetic processes associated to star formation activity in galaxies. In this way, spectroscopic data was used to discriminate those processes in a sample of starburst, luminous infrared galaxies-LIRGs, ultraluminous infrared galaxies-ULIRGs, and also in Seyfert, quasars and radio galaxies. We propose a new diagnostic diagram based on the polycyclic aromatic hydrocarbon features. The diagnostic diagram allow us to discriminate the behavior of starbursts and LIRGs-ULIRGs objects, taking into account the line emission of the PAHs, [NeII], [NeIII], and [OIV]. We found a good relation between [NeII] and PAH (11.2μm+11.3μm) in starburst, LINER and Seyfert samples.

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MOLECULAR HYDROGEN AND [FE II] IN AGNS AND STAR FORMING GALAXIES

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We study the kinematics and excitation mechanisms of molecular hydrogen and [Fe II] lines in a sample of 67 emission-line galaxies with Infrared Telescope Facility SpeX near-infrared (NIR) spectroscopy together with new photoionisation models, in the wavelength interval between 0.8μm and 2.4μm. H_2 emission lines are systematically narrower than narrow-line region (NLR) lines, suggesting that both are, very likely, kinematically disconnected. The new models and emission-line ratios show that the thermal excitation plays an important role not only in active galactic nuclei but also in star forming galaxies. The importance of the thermal excitation in star forming galaxies may be associated with the presence of supernova remnants close to the region emitting H_2 lines. This hypothesis is further supported by the similarity between the vibrational and rotational temperatures of H_2. We confirm that the diagram involving the line ratios H_2 2.121μm /Brγ and [Fe II] 1.257μm /Paβ is an efficient tool for separating emission-line objects according to their dominant type of activity. New limits to the line ratios, are suggested, in order to discriminate between the different types of nuclear activity.

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NUCLEAR OUTFLOWS IN THE SEYFERT 2 GALAXY NGC 5929

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We present two-dimensional (2D) near-infrared spectra of the inner $3'' \times 3''$ of the Seyfert 2 galaxy NGC 5929 at a spatial resolution of $\sim$20 pc obtained with the Gemini NIFS. We report the discovery of a linear structure $\sim$ 300 pc in extent and of $\sim$ 50 pc in width oriented perpendicular to the radio jet, showing broadened emission-line profiles. While over most of the field the emission-line profiles have full-widths-at -half-maximum (FWHM) of $\approx$200km s^{-1}, at the linear structure perpendicular do the radio jet the emission-line FWHMs are twice this value, and are due to two velocity components, one blueshifted and the other redshifted relative to the systemic velocity. We attribute these velocities to an outflow from the nucleus which is launched perpendicular

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