D. May[1], J. Steiner[1], R. B. Menezes[1], and T. V. Ricci[1]

NGC 1068 is the brightest and most studied AGN in the sky. Its study motivated the development of the Unified Model for AGN as the prototype of an obscured Seyfert 1 galaxy. The opportunity of studying such object, with IFU spectrographs in the near infrared, allow us to understand the details of how gas is being fed to the central black hole and how the gas is being ionized and ejected from the center. We re-analyzed data taken from the SINFONI (VLT) and NIFS (GEMINI North) public archives, in the HK bands with spatial resolution of 0,1 arcsec (1,7 pc/spaxel). We concentrated our analysis on the molecular H2 lines, the low ionization line [Fe II] and the high ionization line [Si VI]. The analysis shows very distinct behavior for the different lines. In particular we found a clear structure resembling a "glowing-hourglass" shape for the low velocity [Fe II] emission, while the high velocity emission fills the "hourglass". The shape of this image suggests that the dusty torus and the ionization axis, possibly associated to the central accretion disk, are not co-planar. The primary wind is probably originated from this asymmetry while the secondary wind is likely to be originated from an H2 emitting cloud, about 1" to the north of the AGN, impacted by the primary wind and ionized by the central source.

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THE ROLE OF AGN FEEDBACK IN THE EVOLUTION OF SEYFERT GALAXIES

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Adaptive optics integral-field observations of Seyfert Galaxies have recently revealed clear evidence of AGN-driven outflows of ionized gas. By resolving the inner 10–20 parsecs, we are successfully modeling the geometry and kinematics of the outflows in 3D. The model parameters are used to estimate mechanical feedback from the AGN and test unification models. The mass outflow rates are 2–3 orders of magnitude greater than the accretion rates, but they are comparable to the estimated inflow rates to the central 10–25 pc, suggesting that the outflows may remove a considerable amount of the infalling gas before it reaches the accretion disk. The outflows seem to form two distinct groups which differ by outflow power variations with radio flux. While powerful outflows (with kinetic powers > 1.0% Lbol) are observed in objects with extended radio jets, in the other AGN – in which the outflow power is less than 0.1% Lbol – the radio jet is weak and compact.

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PROBING AGN ACCRETION THROUGH GRAVITATIONAL MICROLENSINGS OF QSOS

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Understanding QSO accretion is both at the frontier of new physics, and essential in understanding the driving force behind the great power of QSOs and their energetic feedback onto their galactic environments. However, the accretion disks are at micro-to-nano arcsecond scales, unresolvable from Earth. Gravitational microlensing of QSOs provides statistical information on the microarcsecond structure of the lensed QSO. By measuring the flux ratio in two of the lensed images and comparing to a lens models for the intervening galaxy, I intend to establish upper limits on the size of the emission region.

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CHARACTERIZING THE CONTINUUM IN NARROW LINE SEYFERT 1 GALAXIES

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Narrow Line Seyfert 1 (NLS1) active galactic nuclei (AGN) are a subclass of AGN with Seyfert 1 characteristics but without prominent broad lines. In this work we approach the determination of the non-stellar continuum using the spectral synthesis technique. We chose a sample of 130 NLS1 available in the Sloan Digital Sky Survey (SDSS). This sample comprehend all the objects of such class catalogued on the local universe (z<0.1). With this method we determined (a) central black hole masses, (b) accretion rates, (c) electronic densities in the narrow line region. We found and analyzed possible relations between this parameters.

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DIAGNOSTIC DIAGRAM WITH POLYCYCLIC AROMATIC HYDROCARBONS IN DIFFERENT TYPES OF GALAXIES

S. A. Quintero[1], A. F. Ramos P.[2], M.A. Higuera-G.[3], J. R. Martínez-Galarza[4]

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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