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O VI 6830Å Imaging Polarimetry of Symbiotic Stars

Almost 50-60% of the Galactic symbiotic exhibit the Raman scattered OVI lines. The detection of these lines provide strong indications of the presence of a symbiotic star. We present here the first results from our ongoing pilot project with the 1.6m telescope at the OPD, Brasil, aimed at the detection of the OVI λ 6830 line. Our goal is to demonstrate that OVI imaging polarimetry can be a very efficient technique for discovering SySts/OVI emitters. The presence of OVI line is detected at 3σ in 5 out of 9 cases, whereas three new SySts candidates have been found.

P 2 Chang, Seok-Jun

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Polarization of Rayleigh Scattered Ly alpha in Active Galactic Nuclei

The presence of a thick molecular torus is essential in the unification model of active galactic nuclei, which is powered through accretion onto a supermassive black hole. The illuminated side of the molecular torus may be photodissociated by strong far UV radiation from the central AGN, forming an HI region with a high neutral column density. We propose that the Rayleigh scattering optical depth of this HI region with $N_{HI} > 10^{20} \text{cm}^{-2}$ can be significant for most broad Ly alpha line photons with the Doppler factor not exceeding 10^4km s^{-1} . Rayleigh scattered Ly alpha photons can be characterized by strong linear polarization depending on their scattering optical depth. We performed Monte Carlo simulations of polarized radiative transfer of Ly alpha adopting simple scattering geometries relevant to the unification model of AGN. We find that for a low torus the Rayleigh scattered Ly alpha is polarized in the direction parallel to the symmetry axis with the polarization degree dependent on wavelength. In the case of a high torus, the core part of Ly alpha is polarized in the direction perpendicular to the symmetry axis whereas the wing part is parallelly polarized. We conclude that careful spectropolarimetry around Ly alpha can be useful in testing the AGN unification model.

P 3 Di Mille, Francesco

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Classical Novae in Nearby Galaxies

The total energy released during the outburst of a classical nova is only exceeded by gamma ray bursts supernovae and some luminous blue variables. By virtue of their high luminosity, classical novae can be detected well outside the Local Group, up to the nearest large Galaxy clusters. During the first phase of the outburst, novae exhibits a strong H-alpha emission that usually has a decline rate much slower of the optical broad-band light curve. Therefore, narrow band imaging centered on H alpha can be used to facilitate a search whenever a frequent monitoring is not possible. In this poster we present some preliminary results of an extragalactic nova survey that we are conducting at Las Campanas Observatory.

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A Monte Carlo Study of Flux Ratios of Raman-scattered O VI Features at 6825 Å and 7082 Å in Symbiotic Stars

Symbiotic stars are known to exhibit unique spectral features at 6825 and 7082, which are formed from O VI 1032 and 1038 through Raman scattering with atomic hydrogen. In this Monte Carlo study we investigate the flux ratios of 6825 and 7082 in a neutral region with a geometric shape of a slab, cylinder and sphere. By varying the amount of neutral hydrogen parametrized by the column density along a specified direction, we compute and compare the flux ratio of Raman scattered O VI 6825 and 7082. We compare our high resolution CFHT data of HM Sge and AG Dra with the data simulated with finite cylinder models confirming that S type symbiotic tend to be characterized by thicker H I region than D type counterparts.

P 5 Lovos, Flavia & Saker, Lelia Yamila

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SDSS J122339.61-005631.1: A Short Period Eclipsing Binary with a White Dwarf Component

SDSS J122339.61-005631.1 (hereafter SDSS J1223-0056) is a detached short period ($P = 2.1$ h) post-common envelope eclipsing binary, formed by a white dwarf plus a main-sequence star. In this work, we present new optical photometry of SDSS J1223-0056, obtained with the 2.15 m Jorge Sahade telescope at Complejo Astronómico El Leoncito (CASLEO, Argentina) and the 1.54 m telescope at Estación Astrofísica de Bosque Alegre (EABA, Argentina), in order to better characterize its light curve. SDSS J1223-0056 and other binary systems, containing a white dwarf component, are being observed as part of a thesis project, with the aim of detecting eclipsing time variations (ETVs). In particular, in this contribution, we report a new analysis of this binary system and confront the derived parameters with those obtained by other authors and with those of other systems with similar characteristics from the literature. In addition, we perform an ETV analysis combining our times of eclipses with those previously reported.

P 6 Tappert, Claus

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A Tale of Two Shells

The classical novae V368 Sct and V1229 Aql both erupted in 1970, from which both declined at the same rate. 45 years later, the ejected material in both objects is still visible as a nova shell, which even show quite similar spatial structure. The compositions, however, appear to be markedly different, with one shell still showing a significant contribution of the optically thin material, while in the other only the optically thick material is visible. We here present spectroscopy to analyze the differences in detail.