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Abstracts - Posters
(Alphabetical by Author)

A

Aurora Aguayo

"Chemical Abundances of Planetary Nebula NGC1514"

Abstract:
The spectra of planetary nebulae are characterised by emission lines at different wavelengths. Depending on the relative intensity of these lines, planetary nebulae are classified as low, medium or high excitation. Measuring the ratios of some of these lines allows us to determine the physical conditions of the gas such as the electronic temperature and electronic density. Also, we can derive the chemical elemental abundances of the gas. The study of the chemical abundances, together with other parameters such as the spatial distribution and kinematic properties, give us information about the evolutionary state and its progenitor star. We present a chemical abundance analysis of the planetary nebulae NGC1514, derived from intermediate-resolution, long-slit optical spectra.

Javier Arancibia Silva

"Age estimation and cluster membership in Collinder 359"

Abstract:
The problem of age determination for almost any kind of astronomical object is far from being solved, but it gets particularly open in the case of intermediate age stellar clusters. The importance of determining the age of open clusters is that it allows us to use the cluster as a snapshot in time to study different stellar processes. In the case of Collinder 359 uncertainties greater than 50% found in the literature (from 20 to 80 Myr) are unacceptable when trying to characterize the members of the cluster.
We have obtained VLT/FLAMES optical medium resolution multi-object spectroscopy of ~150 members and candidate members of Collinder 359 in order to accurately estimate the age of this cluster by using the Lithium Depletion Boundary (LDB) method. We have found very few objects that have significant amount of Li which means either that the cluster is much older than it was thought, or that we have a significant amount of contaminants. This is why we are performing a kinematic analysis of the objects studied using radial velocities measured by us and proper motions taken from the literature, and implementing different clustering methods like Gaussian Mixture Model and Minimum Spanning Tree in order to find the bona-fide members of the cluster.
In this poster we show our preliminary results.

Samanta Aravena González

"SYNTHESIS OF THE CLASSIFICATION PARAMETERS OF ORDINARY CHONDRITES OF THE CHILEAN COLLECTION AND THEIR CORRELATION WITH THERMAL IMPACT PROCESSES IN ASTEROIDS"

Abstract:
The present collection of Chilean meteorites, most of them collected in a decade of scientific expeditions to Atacama desert, are made by 89% ordinary chondrites, 2% carbonaceous chondrites, 1% achondrites, 7% irons, 1% stony irons.The classification of chondrites, the most important group among them, is reached using different parameters as the chemical group, the petrologic type or the aqueous alteration, the shock stage, and the weathering degree, all of them reflecting different processes as the primary accretion and posterior transformations due to thermal and shock metamorphism during the asteroidal history, and after on Earth. We will discuss the importance of these parameters, the techniques used to determine them and the perspective of studies that can be promote between astronomers and meteoricists with the Chilean collection.

B

Mauro Barbieri

"TRILEGAL for LSST"

Marcelo Barraza

"Effects of planet-disk interactions in the dust distribution of protoplanetary disks"

Lilian Basoalto Salazar

"CePIA instruments for LLAMA project"

Abstract:
LLAMA project is an Argentine-Brazilian joint initiative, whose purpose is the installation and commissioning of a 12m diameter antenna in northern Argentina, for mm/submm astronomy.
CePIA is working in three different instruments and/or techniques; 1) Calibration Loads: this sub-system allows the different receivers to transform their measurements to calibrated antenna temperature. The method is based on the y-factor technique, 2) Water Vapor Radiometers at 22 and 183 GHz: Both instruments are designed to characterize the water vapor content (PWV) in the atmosphere. The low-frequency instrument is a stand-alone unit reporting zenithal PWV, whereas the high-frequency unit will be coupled to the beam of the telescope, therefore measuring PWV on the antenna line of sight.
These radiometers are based on the same principles, a pseudo-correlation radiometer with an analog sideband separating section, and digital processing based on FPGA. These developments are a stepping stone into potential technology transfer in Chile. Harnessing the use of the technology involved in this development could lead to solutions for industry (mining,

agriculture, etc) and other scientific disciplines, and 3) Future contribution of CePIA for LLAMA is also related to dish surface characterization by means of radio holography, a technique to improve antenna efficiency.

Paz Bluhm

"New spectroscopic binary companions of giant stars and updated metallicity distribution for binary systems"

Abstract:
We report the discovery of 24 spectroscopic binary companions to giant stars. We fully constrain the orbital solution for 6 of these systems. We cannot unambiguously derive the orbital elements for the remaining stars because the phase coverage is incomplete. Of these stars, 6 present radial velocity trends that are compatible with long-period brown dwarf companions. The orbital solutions of the 24 binary systems indicate that these giant binary systems have a wide range in orbital periods, eccentricities, and companion masses. For the binaries with restricted orbital solutions, we find a range of orbital periods of between ~97–1600 days and eccentricities of between ~0.1–0.4. In addition, we studied the metallicity distribution of single and binary giant stars. We computed the metallicity of a total of 395 evolved stars, 59 of wich are in binary systems. We find a flat distribution for these binary stars and therefore conclude that stellar binary systems, and potentially brown dwarfs, have a different formation mechanism than planets. This result is confirmed by recent works showing that extrasolar planets orbiting giants are more frequent around metal-rich stars. Finally, we investigate the eccentricity as a function of the orbital period. We analyzed a total of 130 spectroscopic binaries, including those presented here and systems from the literature. We find that most of the binary stars with periods ≲30 days have circular orbits, while at longer orbital periods we observe a wide spread in their eccentricities.

Jordanka Borissova

"The galactic forming region RCW82: Variable stars"

Abstract:
RCW 82 is a southern H II region located at a distance of 3.4 kpc and radius of 5 pc. Observations by Pomares et al. (2009, A&A, 494, 987) show that the RCW 82 is in a state of active star formation. According to SIMBAD 12 star clusters and 75 young stellar objects (YSOs) are projected in the region. In this work we will present the investigation of variability of YSOs and their connection with young clusters using the "VVV Vista Variables in the Via Lactea" ESO Large Survey database.

C

Simon Casassus

"Kinematics of gas inside protoplanetary cavities"

Abstract:
I will present new data and models for gas inside protoplanetary cavities.

Valentin Christiaens

“Characterization of low-mass companion HD 142527 B with VLT/SINFONI”

Abstract:
The circumstellar disk of Herbig Fe star HD 142527 is host to several remarkable features including a warped inner disk, a 140 au annular gap, a prominent dust trap and several spiral arms. A low-mass companion, HD 142527 B, was also found orbiting the primary star at only ~12 au. This companion is not well characterized, so that its significance to explain the observed disk features is yet uncertain.
We investigate this companion using VLT/SINFONI data obtained in pupil-tracking mode.
We could re-detect the companion using algorithms based on Angular Differential Imaging separately in each spectral channel. This enabled the extraction of the first medium-resolution spectrum of a companion at less than 0.1" from the central star.
This talk will present how physical properties of the companion including its temperature, mass, age, radius and mass accretion rate could be estimated based on our data.
The new mass estimate of 0.3 Solar mass suggests that its impact on the disk morphology could be more significant than previously expected.

Paulo Cortes

“Interferometric mapping of magnetic fields: The ALMA view of the massive star forming clump W43-MM1”

Abstract:
Here we present the first results from ALMA observations of 1 mm polarized dust emission towards the W43-MM1 high mass star forming clump. We have detected a highly fragmented filament with source masses ranging from 14M to 312M, where the largest fragment, source A, is believed to be one of the most massive in our Galaxy. We found a smooth, ordered, and detailed polarization pattern throughout the filament which we used to derived magnetic field morphologies and strengths for 12 out of the 15 fragments detected ranging from 0.2 to 9 mG. The dynamical equilibrium of each fragment was evaluated finding that all the fragments are in a super-critical state which is consistent with previously detected infalling motions towards W43-MM1. Moreover, there are indications suggesting that the field is being dragged by gravity as the whole filament is collapsing.

D

Agustín Díaz Ocampo

“New view of synchrotron radiation contribution from supernovae remnants on intensity and polarization.”

Abstract:
The microwave emission of Supernova Remnants (SNRs) is dominated by the synchrotron radiation from charged paticles accelerated in the magnetic field when the blast waves from explosion propagate into the interstellar medium.
In radio to microwave emission, the spectral energy distribution (SED) is expected to be a power law with typical spectral indices of -0.4 to -0.8 (or flatter in some pulsar wind nebulae).
However, some SNRs show a broken power law in the range 10-60 GHz, which could indicate a change in the properties of the syncrotron radiation or a new mechanism.
The synchrotron losses or a break in the energy distribution of the relativistic particles have been considered.
In this work, we used data fom nine years of Wilkinson Microwave Anisotropy Probe (WMAP-9), the second release of Planck mission (PR2) and ancillary data in order to characterize the SED of SNRs in intensity and polarization. The polarization properties allow us to confirm a break in the power law, and they could help us to understand the physical mechanisms responsible for the emission.

G

Diego Garcia Appadoo

“Dawn of the Galaxies: Spectroscopy of sources at z > 7”

Abstract:
The epoch of reionisation, which signified the transformation of the universe from opaque to transparent, is poorly understood. When did it occur? Was it gradual or abrupt? What were the sources that contributed to the process? To answer these questions we are conducting an efficient spectroscopic survey of galaxies that likely reionised the universe. We are leading two large HST and Spitzer programs which are obtaining an unprecedented set of deep observations in the 10 of the most efficient lensing galaxy clusters, including all six of the Hubble Frontier Fields (HFF). When completed, GLASS will yield a large sample (30) of Lyman-Break Galaxies (LBGs) with candidate emission lines from low resolution HST grism spectroscopy. We use DEIMOS/MOSFIRE (Keck) with their superb spectral resolution and sensitivity are crucial to confirm these sources are genuine Lyman-α emitters (LAEs) at $z \geq 7$ (by measuring the shape and increased S/N of the emission lines compared to the HST observations).

H

Antonio Hales

”Gas in Debris Disks”

Abstract:
ALMA observations of the12CO J=2-1 rotational line at ~1-1.5"" resolution were conducted toward a sample of 23 debris disks in the Scorpius Centaurus Association. 3 out of 23 debris disk were detected in 12CO (Figure 1), and 20 in continuum. A summary of the observations

was presented in Lieman-Sifry et al. (2016). In this work we focus on modelling the CO-rich disks.

Daniel Hernández

“VICUÑA AND THE FALCON TELESCOPE NETWORK: THE FIRST LIGHT PROJECT“

Abstract:
Increasing student interest, engagement, and retention in science, technology, engineering, and mathematics (STEM) fields is a problem that needs to be addressed in creative ways. By providing students with opportunities to participate in meaningful, hands-on, authentic science experiences, we can hopefully spark and retain student interest in science through a variety of projects and initiatives utilizing the unique resources available within the Falcon Telescope Network (FTN), a global network of 20-inch telescopes being developed by the United States Air Force Academy (USAFA) Department of Physics. The kickoff STEM outreach project for a FTN node will be the STEM First Light Project. Currently the FTN has five nodes installed, two in CO at Otero Junior College and Northeastern Junior College; and one each in Chile; Canberra, Australia; and Penn State University. Each node of FTN will have a first light event. In this work we'll discuss the first light of the network involving the node at Mamalluca's Observatory, near Vicuña, Chile, where students from Vicuña's schools submitted their proposals expressing which astronomical objects to image.

J

Daniela Jara

“ADASS XXVII”

Abstract:
The Astronomical Data Analysis Software and Systems (ADASS) conference.

L

Felipe Lagos Vilches

“*The galactic forming region RCW82: Photometric investigation of young stellar clusters: [MCM2005b] 43, 47, VVV CL034 and [DBS2003] 135”*

Abstract:
RCW 82 is a southern H II region located at a distance of 3.4 kpc and radius of 5 pc. Observations by Pomares et al. (2009, A&A, 494, 987) show that the RCW 82 is in a state of active star formation. According to SIMBAD 12 star clusters are projected in the region and none of them is investigated in details. To fill this gap and to shed a light of the recent star formation in the region we present deep, near-infrared photometric study, based on ""VVV Vista Variables in the Via Lactea"" ESO Large Survey of the young star clusters [MCM2005b]

43, 47, VVV CL034 and [DBS2003] 135. The fundamental parameters of the clusters: distance, reddening, age and mass are determined, as well as variability search and analysis.

Shulin Li

"CASSACA: The bridge between China and Chile"

Abstract:
The Chinese Academy of Sciences South America Center for Astronomy (CASSACA), also known as China-Chile Joint Center for Astronomy (CCJCA), is one of the overseas projects initiated by the Chinese Academy of Sciences (CAS) to promote cooperation in science and technology with other countries. The Center serves as a platform and promoter for collaborations in astronomical research and related technology development with Chile and other South American countries as well as international observatories in Chile. Here we give a brief introduction of CASSACA and its recent progress.

M

Natalia Machuca

"Development of an HI radio telescope at UdeC"

Abstract:
We present the development of a 21-cm Radio Observatory for measurements of galactic HI emission. The observatory is considered for academic purposes as means to introduce Radio-Astronomy and instrumentation concepts. The development consists on the following stages: 3m antenna assembly, mount setup and control system, receiver design and characterization, and finally a remote communication link with the system.
The microwave receiver is of total power nature. It includes low noise amplification and band-pass filtering. This receiver then routes the signal to a Spectrum Analyzer (SA), where it is digitized and stored in disk. The microwave receiver design was supported with the use of analytic tools and simulations with the AWR software. Criteria for design was sensitivity and gain. With respect to antenna control and observations, we have recently installed a remote control system that allows us to observe from any place with internet connection.
We have successfully observed neutral Hydrogen on the Milky Way with this new facility at UdeC. We have obtained real information of velocity, temperature and distribution of gas. Currently, we are in the process of improving system sensitivity. Future efforts are directed towards the installation of a second antenna element for the synthesis of an interferometric system.

Francesco Mauro

"SkZpipe: a Python3 module to produce efficiently PSF-fitting photometry with DAOPHOT, and much more"

Abstract:
In an era characterized by big sky surveys and the availability of large amount of photometric data, it is important for astronomers to have tools to process their data in an efficient, accurate and easy way, minimizing reduction time. We present SkZpipe, a Python3 module designed mainly to process generic data, performing point-spread function (PSF) fitting photometry with the DAOPHOT suite (Stetson 1987). The software has already demonstrated its accuracy and efficiency with the adaptation VVV-SkZ_pipeline (Mauro et al. 2013) for the “VISTA Variables in the Via Lactea" ESO survey, showing how it can replace the users, avoiding repetitive interaction in all the operations, retaining all of the benefits of the power and accuracy of the DAOPHOT suite, detaching them from the burden of data precessing. This software provides not only a pipeline, but also all the tools to run easily each atomic step of the photometric procedure, to match the results, and to retrieve information from fits headers and the internal instrumental database. We plan to add the support to other photometric softwares in the future.

Hugo Méndez-Hernández

“Probing the Cirgum Galactic Medium around high redshift galaxies with VUDS”

Abstract:
Our current understanding of galaxy formation is based on studies of i) stars ii) star formation and iii) multi-phase gas, but the link between all these components is missing, providing us an incomplete and fragmented view of all the involved processes. Several studies based on simulations and theoretical analysis suggest that galaxies acquire most of their baryons by funneling cold gas, through cold filamentary streams deep inside dark matter (Birnboim+2003; Keres+2005;Keres +2009), moreover these cold streams should be detectable by absorption or emission, covering 25% of the area around galaxies ($z<2.5$) at radii between 20 and 100 kpc, and flowing in with velocities >200 kms-1 (Dekel+09). Moreover, the popular scenario for the transition between the blue and the red sequence invokes a phase when the gas is expelled from the galaxies via strong winds (e.g., di Matteo et al. 2005; Hopkins et al. 2010).

As as a very first step, in order to understand how gas flows in and out of galaxies, we focused our attention to the interface between galaxies and the Intergalactic Medium: the circum galactic medium (CGM). A way to probe the CGM around star-forming galaxies is to look for absorptions that the CGM around foreground galaxies imprints in the spectra of bright background galaxies. By using different lines-of-sight we can get useful information on the overall kinematics, chemical abundances, and (in some cases) estimates of the mass flux of cool material entrained in an in-outflow, which can be achieved by selecting close galaxy pairs where background galaxies provide information on the spatial distribution of circumgalactic gas surrounding the foreground galaxies (Steidel+10). For this purpose we have selected a sample of ~3000 close (2-250 kpc) galaxy pairs from the Vimos Ultra-Deep Survey (VUDS) in order to probe the circumgalactic medium (CGM) around galaxies at $2< z <4$, aiming at identifying cold accretion gas (inflows) or high velocity stellar winds (outflows) that could be related to the quenching or enhancement (triggering?) of star formation in these galaxies. So far, we have detected strong absorption features in both individual and stacked background galaxies spectra. By doing this, we are able to trace the average absorptions line strengths (i.e. Ly- alpha CIV, OISiII, CIV, AlII) out to galacto-centric radii of 150 kpc on stacked spectra, and absorptions line

strengths up to~250 kpc in some individual cases. I will present these results in a context where the circumgalactic gas is distributed symmetrically around every galaxy (Steidel+10), and relate this with a star-formation enhancement/quenching event.

Nicolás Meza Retamal

“Independent Cosmological constrains from type II SNe : Review and prospects”

Abstract:
I will review the current methods, from both detail modeling and more empirical approaches, to measure distance to type II SNe and i will discuss the possible potential of the LSST survey + Follow up programs to make precision cosmology with type II as an independent probe of the expansion of the universe.
I will finally show my work in simulating the constrains on the cosmological parameters with the Photospheric magnitude method to measure distances and discuss the need for further improvements.

Fernanda Milla

“Preliminary results about the discovery of a large concentration of galaxies in the Zone of Avoidence.”

Abstract:
The VISTA Variables in the Via Lactea (hereafter VVV, Minniti et al. 2010) is a public ESO survey designed to study the structure of the Milky Way (MW), covering an area of 562 square degrees of the bulge and an adjacent section of the mid-plane in five near-IR bands (Z,Y,J,H,Ks). Along the first years, the deep and quality of the data provided by the VVV survey, has allowed to obtain results in different areas of study, such as the detection of new globular clusters (Minniti et al. 2011), news stellar open clusters (Borisova et al. 2011; Borisova et al. 2014; Barb´a et al. 2015), new brown dwarfs (Beamin et al. 2013), and the confirmation of the galaxy cluster Suzaku J1759-3450 (Coldwell et al, 2014) located behind the galactic bulge.

In this work, we report preliminary results about the discovery of a large concentration of galaxies in the Zone of Avoidence (ZoA) near the Norma Cluster at (ℓ, b) = (325.3○, –7.2○). Following the procedure described in Baravalle et al. 2016 (submitted), we were able to detect 45 extended sources, with an elongated distribution, in the same line of distribution of the Norma Cluster. This preliminary results suggest the existence of a more massive concentration of galaxies behind the MW, which must be confirmed using NIR spectroscopy in future works.

The discovery is made in the framework of an extensive program that look for extragalactic sources in the area covered by the VVV survey, (Baravalle et al. 2016).

Autores

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Natalia Molina

“STUDY OF BLAZARS WITH THE 40M OWENS VALLEY RADIO OBSERVATORY”

Abstract:
Blazars are a type of active galactic nucleus (AGN) characterized by the emission of a relativistic jet that points close to our line of sight. They are extremely powerful, variable emitters from radio to gamma-ray wavelengths.

By cross-correlating light-curves from different energies, it is possible to determine the physical condition of the blazar emitting region, i.e. mechanism, morphology, distance from block hole to the actual emission, etc.

In 2007, the 40m telescope at the Owens Valley Radio Observatory (OVRO) embarked on a new research campaign. In support of the Fermi Gamma-ray Space Telescope, the OVRO 40m telescope is monitoring more than 1800 blazars twice per week. In 2014, a new Ku-band spectropolarimeter receiver, KuPol, was installed on the 40m telescope with the aim of elucidating about potential spectral fluctuations that may arise during the flaring events.

In this poster we will present relevant information and preliminar results from KuPol and its calibration, and also progress on the cross-correlation analysis between high energies and radio emission, towards an estimate for the location of the high energy emission region. "

Katherine Montenegro

”The density and metallicity profiles of Milky Way mass-sized haloes “

Abstract:
Katherine Montengro
Patricia B. Tissera
The current cosmological paradigm postulates that galaxies assembled hierarchically by the aggregation of smaller systems.
The formation history of galaxies such as the Milky Way involves infall, mergers and interactions with different relative importance probably modulated by the global environment where they inhabit. These mechanisms might leave fingerprints or signatures in the stellar populations which could provide insight in their history of formation. In particular, chemo-dynamical patterns are a challenging route to confront models and observations. State-of-art cosmological codes include chemo-dynamical schemes which allow the description of the non-linear evolution of the structure together with the chemical enrichment of baryons.

In this poster, we present preliminary results of a study of the metallicity and density profiles of haloes simulated within the current cosmological paradigm and their evolution in time.

Cesar Muñoz

“Chemical Evolution of the Alpha-Rich Galactic Bulge Globular Cluster NGC 6440”

Abstract:
Galactic Globular Clusters (GCs) are essential tools to understand the formation of the Milky Way, since they are among the oldest objects in the Universe and can be used to trace its formation and evolution.
Our aims is to perform a detailed chemical analyses of the bulge GC NGC 6440 in order to determine if this object has Multiple Populations (MPs) and whats is its relation with the Bulge of the Milky Way and with the other Galactic GCs."

Daniel Muthukrishna

“Emission Line Profiles for Star Formation Regions in Interacting Galaxies”

P

Pamela Paredes

“ANALYSIS AND CONTRIBUTION TO PRECIPITABLE WATER VAPOR IN THE CHAJNANTOR AREA”

Abstract:
Water vapor is a strong atmospheric absorber to cosmic millimeter and sub-millimeter waves. Understanding of water vapor variability, spatial distribution and cycle periodicities of the molecule are of prime importance to mm and sub-mm astronomy.

In this poster, we present results from a tropospheric study over the Chajnantor area over different timescales, from days to years. For this purpose, we use information from several instruments spread over LLano de Chajnantor, Cerro Toco and Cerro Chajnantor, and spanning a large time period, from 1997 to 2014.

The instruments used were different in nature and observing techniques, i.e. microwave radiometry, sub-millimeter tipping radiometers, and mid-infrared extinction measurements through photometry, and the data was all converted to a single physical quantity, precipitable water vapor (PWV).

Good agreement was found between the 350 um tippers and the PWV measured by the APEX station. This allowed us to use the tippers in other sites to extract PWV from them. We found that the Chajnantor summit is 33% dryer than the plateau, which is in agreement with previous

studies. We also found that Cerro Toco is 10% dryer than the plateau. Recently, we published a long term relationship between the atmospheric conditions of the Llano de Chajanantor (APEX, ALMA) and the summit of Cerro Chajnantor (CCAT, TAO). In this study, we have derived a new short term transformation based on the local ambient temperature, to scale the transformation from opacity to PWV, providing much better accuracy to our results and enabling the study of shorter term variability processes at play in the region."

Pablo Peña

“New Super-Earth discoveries using an affine-invariant MCMC radial velocity fitter”

Abstract:
I will present the results I got with a brand-new implementation of emcee to fit Keplerian models using Doppler signals. We aimed at confirming the existence of a planetary system orbiting the M dwarf star GJ180, located 40 light-years away from our own Sun.
The method consists of applying a Markov-Chain Monte Carlo algorithm to perform a bayesian search of the radial velocity parameter space, aiming to search for Doppler signals hidden in the data by analyzing simultaneously the Keplerian signal for N planets, along with nuisance parameters like stellar jitter, linear acceleration and systemic radial velocity for each data set. We also implement a new ARMA model to better consider the correlations in the radial velocity noise, since it has been previously shown that such data is not white. Finally, I will discuss our latest results on GJ180, which is a new low-mass planetary system discovered in the nearby stellar neighborhood."

Victoria Pérez

“NIR color variability of AGN in the COSMOS field”

Abstract:
Variability across the electromagnetic spectrum is one of the most defining characteristics of Active Galactic Nuclei (AGN). Previous analysis claim that this variability is also present when we analyze the colors of AGN, saying that they get bluer when the luminosity increase. We use near infrared (NIR) data from the UltraVISTA survey to study the color variability at regions of the electromagnetic spectrum where we expect to observe the transition between the emission that come from the disk and the torus of the AGN. This kind of analysis has not been done before, since well sampled NIR light curves are required. In this poster, we will present a preliminary results of our analysis. In general we found the bluer-when-brighter trend, however there are some exceptions.

Pedro Poblete

“The road to synthetic spectra of black holes binaries”

Abstract:
In this project we intend to model the behavior of a binary system of super massive black holes for the purpose of creating observables. The method to create the spectrum is based on the analysis of binary simulations of black holes with a gas cloud in which a complete rotation of the binary is taken into account. And with the implementation of a routine in python, a gas particle velocity spectrum is produced with the ability to change the direction of observation in all possible directions of the sphere.

Evelyn Puebla

“A search for stunted outbursts in fourteen post-novae”

Abstract:
Cataclysmic binaries are widely known for their brightness fluctuations on all time scales from seconds to hours, weeks and years. They represent perfect targets for testing and improving accretion disk theories under different conditions in the same star.
Using the 1.3-m telescope located at Tololo Inter-American Observatory (CTIO) with a CCD camera, a photometric study was performed of 14 post-nova, 40 to 230 years after the peak brightness of their thermonuclear eruptions. In V728 Sco and in 4 further post-novae we have found dwarf nova type eruptions whose parameters such as periods, FWHM and amplitudes were calculated and compared with previous studies of V466 Her. In addition, we confirmed and improved the ephemeris of 4 previously known eclipsing binaries and of 3 post-novae with orbital humps, and derived the hitherto unknown period of V363 Sgr.

R

Claudio Rivera

“AME found in LDN1622”

Abstract:
LDN 1622 has been extensively studied because of observed anomalies in its SED (spectral emission distribution), particularly in the microwave regime. This dark nebula have an excess of emission, commonly called AME (anomalous microwave emission), that can not be explained with usual emission mechanisms. The best candidate responsible for this excess is the spinning dust.

AME has been found in numerous regions related with stellar formation as warm ionized medium, reflection nebulae, photodissociation regions, HII regions even in extragalactic sources. AME has been detected with a typical value of 10μK (MJysr – 1) – 1, specifically in LDN1622 the AME found was of 21.3 ± 0.6 μK (MJysr – 1) – 1 (Casassus et al. (2006)).

The FUV near of LDN1622 can hit the dust and excite its angular moment operator to generate the spinning dust. Therefore understanding the physics of this cloud, ie. the degree of ionization, temperature and densities of the different layers is important to understand the mechanism that produces AME.

Patricio Rojo

“Status update TraMoS survey”

Abstract:
The TraMoS survey has been monitoring transiting planets using meter-class telescopes for many years. Over 100 transits have been observed for over 50 transiting planets since the survey started back in 2008. The main aim is the monitoring of variability at different epoch in transiting planets' lightcurves. Several papers have been published, studying starspot crossing and discarding previous claims on variability of the transit timing. We will present the latest status of the survey and short term prospects.

S

Matías Suazo

“Formation of Super Massive Black Hole seeds”

Abstract:
Evidence shows that massive black holes reside at the center of galaxies and co-evolve with their hosts. We know that massive black holes that currently populate galaxy centers shone as quasars in the past. The observations of quasars before the reionization epoch show that they already hosted Super Massive Black Holes with masses up to 10^{10} solar masses. Here I present several cosmological simulations performed with the hydrodynamical code RAMSES to study the formation of seeds in different scenarios. The KROME package is included in order to add the chemical composition and processes that work by this era.

T

Sergio Torres Flores

“The peculiar metallicity gradient for the local merging/interacting galaxy NGC 1487”

Abstract:
In this poster we present Gemini/GMOS spectroscopic data and new Halpha Fabry-Perot observations of the local merging/interacting galaxy NGC 1487. By using the spectroscopic observations of several HII regions we derive the metallicity gradient for this system. These observations reveals the presence of an inverted/flat metallicity gradient for NGC 1487. The new Halpha Fabry-Perot observations reveals a complex kinematics for this object, with strong non-circular motions, which can suggests the existence of gas flows. We speculate that these gas flows are responsible in producing the flat/inverted metallicity gradient for this system, through a mixture of enriched and non-enriched gases coming from the central and external regions of the galaxies that are part of this interaction/merger event. This latter scenario is supported by simulations of interacting galaxies.

V

Jaime Vargas González

“APOGEE-2 South: Hardware development at LCO”

Abstract:
The second stage of the Apache Point Observatory Galaxy Evolution Experiment (APOGEE-2) is extending the reach of the SDSS by using both the Sloan Foundation Telescope at Apache Point Observatory (APOGEE-2N) and the Irénée du Pont Telescope at Las Campanas Observatory (LCO) in Chile (APOGEE-2S). This provides an entire view of the Milky Way from north and south hemispheres.The new Chilean telescope will offer an excellent view of the galactic central regions. In this work we present the technical details of the APOGEE-2S, instrument details and infrastructure development at LCO for the arrival of the APOGEE spectrograph.