Annual Report 2015

Instituto de Física y Astronomía, UV

Universidad de Valparaíso
Gran Bretaña 1111, Valparaíso, Chile

This document summarizes the activities performed by the *Instituto de Física y Astronomía* (IFA) of the *Universidad de Valparaíso* during 2015. This year the IFA counted 20 full time faculty members, 17 postdocs, 12 PhD students and 10 MSc students. The researchers published a total of 107 refereed (ISI) papers.

1 People

The following sections list the people who have worked at IFA during 2015.

1.1 Faculty

Patricia Arévalo, PhD: Ludwig Maximilians Universitaet, Munich, Max-Planck-Institut fuer extraterrestrische Physik (2006). Research Area: black holes, accretion, Active Galactic Nuclei (AGN)

Amelia Bayo, PhD: Universidad Autónoma de Madrid, Madrid (2009). Research Area: Brown dwarfs, low-mass star formation, disk evolution, astro-statistics, virtual observatory

Jura Borissova, PhD: University of Sofia, Bulgaria (1990). Research Area: stellar formation, stellar clusters, Milky Way galaxy, infrared astronomy, massive stars, variable stars

Víctor Cárdenas, PhD: Universidad de Santiago de Chile (2001) Research Area: Cosmology, General Relativity, Dark Matter, Dark Energy

Paolo Cassata, PhD: Università degli Studi di Padova (2005) Research Area: Galaxy evolution, observational cosmology, morphological properties and spectroscopy of high-redshift galaxies

Omar Cuevas, PhD (to be awarded): Ludwig Maximilians Universitaet, Munich, Germany Research Area: Meteorology, Astrometeorology, Atmospheric simulations

Michel Curé, PhD: Physik, Ludwig-Maximillians University - Munich, Germany (1992). Research Area: Massive Stars, Stellar winds, hydrodynamics, Radiative transport, Numerical Methods, Astrostatistics, Astrometeorology

Eduardo Ibar, PhD: Institute for Astronomy, University of Edinburgh, Edinburgh, UK (2009). Research Area: Observational Cosmology, Galaxy Formation and Evolution, Active Galactic Nuclei, Deep Radio, Infrared y Submillimetre surveys.

Iván Gonzalez, PhD: Universidad Técnica Federico Santa María (2007). Research Area: Perturbative QFT; Feynman diagrams; Method of Brackets

Osvaldo Herrera, MSc: Magíster en Ciencias con Mención en Física, U. Católica de Valparaíso (1989). Research Area: General Relativity, Cosmology

Samer Kanaan, PhD: Université de Nice Sophia-Antipolis, Francia. Research Area: Massive stars, Be and B[e] stars, stellar interferometry, radiative transfer

Radostin Kurtev, PhD: Sofa University, Bulgaria (2000). Research Area: stellar formation, stellar clusters, Milky Way galaxy, infrared astronomy, very low mass stars, brown dwarfs, cool atmospheres

Quintín Molina, PhD: Louisiana State University (1990). Research Area: Electron-electron Interaction, Doubly Excited Rydberg States in Atoms, Slater integral Symmetry

Verónica Motta, PhD: Instituto de Astrofísica de Canarias, España (2002). Research Area: observational cosmology, strong gravitational lensing, microlensing, active galactic nuclei, accretion disks, galaxy groups and clusters, high redshift galaxies, dark matter, spectroscopy

Matthias Schreiber, PhD: Georg-August University of Goettingen, Germany (2001). Research Area: compact binary evolution, white dwarfs, protoplanetary disks, planet formation

Claus Tappert, PhD: Rühr-Universität Bochum, Alemania (). Research Area: Cataclysmic Variables, Binary Stars, Novae

Alfredo Vega, PhD: Universidad Federico Santa María (2009). Research Area: Gauge / Gravity Dualities, Hadron Physics, AdS / QCD

José Villanueva, PhD: Pontificia Universidad Católica de Valparaíso (2010). Research Area: Inflation; reheating; dark energy (DE); dark matter (DM); DE-DM interaction; geodesics; tests of general relativity; exact solutions

Nikolaus Vogt, PhD: Universidad de Rühr, Bochum, Alemania (1969). Research Area: variable stars, cataclysmic binaries, classical novae, dwarf novae, post-common envelope binaries (PCEBs), Mira stars, long-term stellar variability with low amplitude; young low-mass binaries or multiple systems.

Maja Vuckovic, PhD: Institute of Astronomy, KU Leuven, Belgium (2009). Research Area: Evolution of hot subdwarf stars, compact pulsators, close binary stellar evolution, asteroseismology

1.2 Postdocs

Alba Aller PhD: Universidad de Vigo, Spain (2015). Research area: hot subdwarf stars, planetary nebulae, central stars of planetary nebulae.

Juan Carlos Beaemín PhD: Pontificia Universidad Catolica de Chile, Chile (2015). Research Area: Low mass stars, brown dwarfs, large astronomical datasets.

Madelon Bours PhD: University of Warwick, UK (2015). Research Area: white dwarfs, close binaries, eclipsing binaries, cataclysmic variables.

Claudio Cáceres PhD: Pontificia Universidad Católica de Chile, Chile (2012). Research Area: Protoplanetary discs evolution, planet formation, exoplanetary transits, atmospheres of exoplanets, planets around Post Common Envelope Binaries (PCEBs).

Héctor Cánovas PhD: Universidad de Utrecht, Holanda (2011) Research Area: protoplanetary disks, transition disks, planet formation, high-contrast imaging, imaging polarimetry.

Julio Carballo PhD: Universidad de La Laguna / Instituto de Astrofísica de Canarias (Islas Canarias) Research Area: Stellar Clusters, Milky Way, dwarf galaxies

Mariusz Gromadzki PhD: Nicolaus Copernicus Astronomical Center, Warsaw, Polonia (2010). Research Area: infrared astronomy, very low mass stars, brown dwarfs, cool atmospheres, stellar formation, stellar clusters, Milky Way, binaries

Diah Gunawan PhD: Rijksuniversiteit Groningen, the Netherlands Research Area: Massive stars in the Galaxy and galaxies, stellar winds, colliding winds, dust formation, winds-ISM interactions.

Thomas Hughes PhD: University of Cardiff, UK (2011). Research Area: Galaxy formation and evolution, including processes regulating star formation and chemical evolution, the impact of the environment, and the growth of the red sequence.

Michael Kuhn PhD: The Pennsylvania State University, Pennsylvania, USA (2014). Research Area: Star Formation, Star Clusters, Galactic Astronomy, X-ray Astronomy, IR Astronomy, Astrostatistics, Statistical Modelling

Juan Magaña PhD: Instituto de Astronomía-UNAM, México. Research Area: Cosmology, Dark matter, Dark energy, Scalar field Cosmology, Numerical Simulations.

Johan Olofsson PhD: Institut de Planetologie et d' Astrophysique de Grenoble, France (2009). Research Area: Planetary Formation, dust mineralogy, debris disks, interferometry.

Steven Parsons PhD: Universidad de Warwick, UK (2012). Research Area: White dwarfs, low-mass stars, compact binaries, eclipsing binaries.

Sebastián Ramírez Alegría PhD: Universidad de La Laguna/Instituto de Astrofísica de Canarias, Tenerife, España. Research Area: stellar formation, stellar clusters, Milky Way galaxy, infrared astronomy, massive stars. Research Area: Black hole physics, X-rays, Hydrodynamics, Radiative transfer, Cooling, Viscosity and Observational data analysis.

Romain Thomas PhD: Laboratoire d'Astrophysique de Marseille, France (2015). Research Area: Galaxy formation and evolution. Large spectroscopic surveys.

Joris Vos PhD: University of Leuven, Belgium (2015). Research Area: Hot subdwarfs, Binary interaction physics, Binary evolution.

Mónica Zorotovic PhD: Pontificia Universidad Católica de Chile (2011). Research Area: Evolution of Close Compact Binaries, Common Envelope Phase, Cataclysmic Variables, SNe Ia progenitors, Planets Around Evolved Binaries

1.3 PhD Students

including where they came from (where they did their Msc or licenciatura)?

Ignacio Araya, Bachelor in Physics, Universidad de Valparaíso. Master in Astrophysics, Universidad de Valparaíso. Research Area: Massive Stars, Stellar Winds, Hydrodynamics, Radiative Transport.

Adam Hardy, Msc, Licenciatura en Física, University of Warwick, UK. Research Area: The protoplanetary to debris disk transition, and the application of post-common envelope binaries to disk physics.

Claudio Navarro Licenciatura en Astronomía, Pontificia Universidad Católica de Chile. MSc, Pontificia Universidad Católica de Chile. Research Area: Open Clusters. Young Stellar Objects. Variable Stars.

Catalina Arcos, Master in Astrophysics, Universidad de Valparaíso. Research Area: Observations and disk modeling of Be stars; Stellar winds of massive stars.

Rosamaria Carraro, Licenciatura en Física, Università degli Studi Roma Tre. Magíster en Astronomía, Università degli Studi di Padova. Research Area: Galaxy formation and evolution. Co-evolution of galaxies and AGN.

Irma Fuentes, Licenciatura en Física mención Astronomía, Universidad de Valparaíso. Magíster en Astrofísica, Universidad de Valparaíso. Research area: Cataclysmic Variables, Binary stars, Novae.

Alex Gormaz-Matamala, Astrónomo, Universidad de Concepcin. Magíster en Ciencias mención Física, Universidad de Concepcin. Research Area: Wolf-Rayet Stars and Stellar Winds of Massive Stars.

Daniela Iglesias, Licenciada en Astronomía, Pontificia Universidad Católica de Chile. Research Area: Debris disks and planetary formation.

Hugo Mendez,, Maestría en Ciencias (Astronomía) and Licenciatura en Física at Universidad Nacional Autónoma, México. Research Area: Extragalactic astronomy, photometric surveys, inter-stellar/galactic-medium.

Alexandra Ka Po Yip, Bachelor of Science, University of Hertfordshire (UK). Master of Science, University of Hertfordshire (UK). Research Area: Brown dwarfs and exoplanets.

Karina Rojas, Licenciatura en Física mención Astronomía, Universidad de Valparaíso. Magister en Astrofísica, Universidad de Valparaíso. Research Area: strong gravitational lensing at different scales in the Universe.

Alejandro Santamaría-Miranda, Grado en Física, Universidad Complutense de Madrid. Master in Astrophysics, Universidad Complutense de Madrid. Research Area: Protoplanetary disks.

1.4 Master Students

Carolina Agurto, Licenciatura en Física mención Astronomía, Universidad de Valparaíso, Chile.

Javier Arancibia Silva, Licenciatura en Astronomía, Universidad de Chile. Research Area: Young stellar clusters. Study of the age, dynamics and activity of cluster members.

Alexander Contreras, Licenciatura en Física mención Astronomía, Universidad de Valparaíso, Chile.

Miguel Fernandez, Licenciatura en Física mención Astronomía, Universidad de Valparaíso, Chile.

Nicolás Godoy B., Licenciatura en Astronomía, Instituto de Astrofísica, Pontificia Universidad Católica, Chile (2014). Research Area: data driven problems, from precise astrometry and high proper motion binary detections within VVV to optimal data reduction of SPHERE data.

Felipe Lagos, Licenciatura en Ciencias mención Astronomía, Universidad de Chile, (2014).

Nicolás Medina, Licenciatura en Astronomía, Universidad de Concepción, Chile.

Leandro Monje, Licenciatura en Física, Universidad de Chile.

Guillermo Retamales, Licenciatura en Astronomía, Universidad de Chile.

Vicente Villanueva, Licenciatura en Astronomía, Universidad de Chile.

1.5 Arrivals

The following researchers joined IFA during 2015

Postdocs Alba Aller, Juan Carlos Beamín, Madelon Bours, Diah Gunawan, Thomas Hughes, Johan Olofsson, Romain Thomas, Joris Vos

PhD students Rosamaria Carraro, Irma Fuentes, Alex Gormaz, Hugo Méndez, Alejandro Santamaría

MSc students Javier Arancibia, Alexander Contreras, Nicolás Godoy, Felipe Lagos

1.6 Departures

Carolina Agurto, Astrophysics PhD Student in Max Planck Institute for Extraterrestrial Physics (MPE)

Pía Amigo, currently teaching astronomy and physcis courses and PUC

1.7 Visitors

Visiting scientists residing at IFA for periods of a week or more

Francisco Najarro (CAB/CSIC, Espaa) invited by Michel Curé and Jura Borissova between 22/October and 6/November.

G. Baume, Universidad de La Plata, Argentina, 31.01-08.04.2015, invited by J.Borissova

Ph. Lucas, University of Herfordshild, UK, invited by J.Borissova and R. Kutev

2 PhD or MSc Degrees Awarded

In 2015 the following graduate students received their degree:

Carolina Agurto, MSc. Combining the Catalina light curve catalogue and SDSS to identify new eclipsing PCEBs", Supervisor: Matthias Schreiber

Nicolas Medina, MSc. Variable stars in BRC87, 88,89", Supervisor: Jura Borissova

Vicente Villanueva, MSc. "Parallaxes with the VISTA Variables in Va Lctea Survey (VVV)", Supervisor: Radostin Kurtev

3 Accredited Programs

Bachelor in Physics: On 2015, a comitee has been defined to start the process of accreditation.

Master in Astrophysics: The Magister in Astrophysics program was accredited on 2014 for seven years (period 27-March-2014 / 27-March-2021) by the *Consejo de Acreditacin del Área de Ciencias de la Agencia de Acreditación* (ACREDITA CI).

Ph.D. in Astrophysics: The PhD in Astrophysics program has been accredited on 2015 for three years (period 26-August-2015 / 26-August-2018) by the *Comisión Nacional de Acreditación* (CNA).

4 Infrastructure

The IFA has the following research and teaching dedicated infrastructure.

4.1 Observatory

The IFA will operate a Boller & Chivens 61 cm aperture telescope, originally located at Observatorio La Silla, ESO, at the Observatorio Calle Larga, as part of an agreement between Universidad de Valparaíso and the Municipality of Calle Larga. This agreement, and the donation of the telescope by the Ruhr-Bochum University, Germany, was mediated by N. Vogt. By the end of 2015, the dome and mount were ready and the telescope is expected to be installed in early 2016. This will be the most powerful telescope in Chile's Region V and will be used for educational and research purposes by the members of IFA.

Pre-agreement for the seventh telescope of the BOOTES world-wide network of robotic telescopes to be installed in Observatorio de Calle Larga.

4.2 Computer Cluster

IFA have a computational cluster called "kosmos". Fifteen servers work in parallel by open-mpi with condor and sge queue management. Has a total of 432 online cores and 12 TB of storage. Intel and GNU compilers are available for Fortran, C, and python languages, also many libraries to support models in physics, astronomy, astrophysics, atmospherics sciences, statistics and others. At present, kosmos is the most bigger cluster in the Universidad de Valparaiso.

5 Scientific Awards

"Premio Adelina Gutierrez de excelencia científica 2015" of the Chilean Academy of Sciences: This grant commends young (under forty) female scientists carrying on outstanding research in Chile. The 2015 award was given to A. Bayo.
SOCHIAS grad students talk prize: awarded to the best graduate student talk in the annual scientific meeting of the SOCHIAS. The 2015 prize was awarded to K. Rojas.

6 Active External Funds

6.1 FONDECYT (Regular, Iniciación or Postdoctorado)

FONDECYT Postdoctorado 2016 (P.I. Alejandra Muñoz; Sponsor E. Ibar)
FONDECYT Postdoctorado 2016 (P.I. Santuanu Mondal; Sponsor P. Arévalo)
FONDECYT Postdoctorado 2016 (P.I. Joris Vos; Sponsor M. Vuckovic)
FONDECYT Postdoctorado 2016 (P.I. Alba Aller; Sponsor M. Vuckovic)
FONDECYT Postdoctorado 2016 (P.I. Juan Magana; Sponsor V. Motta)
FONDECYT Iniciación (P.I.s A. Bayo, S. Kanaan J. Villanueva)
FONDECYT Regular (P.I.s: P. Arévalo, P. Cassata, R. Kurtev, V. Motta, C. Tappert, M. Schreiber, M. Curé)

6.2 Others

Conicyt Inserción en la Academia 2015 (P.I.s J. Villanueva, V. Cárdenas; Graeme Candlish)
ESO comité Mixto 2015 (P.I. A. Bayo; PDRA Juan Carlos Beamín)
ESO comité Mixto 2014 (P.I. M. Vuckovic; PDRAs Madelon Bours, Joris Vos)
ESO comité Mixto 2014 (P.I. R. Kurtev; PDRA Mariusz Gromadzki)
ALMA-Conicyt 2015 (P.I. E. Ibar; PDRA Thomas Hughes)
ALMA-Conicyt 2015 (P.I. M. Curé; PDRA Diah Gunawan)
Gemini-Conicyt 2015 (P.I. V. Motta; PDRA Romain Thomas)
Gemini-Conicyt 2013 (P.I. J. Borissova; PDRA Juan Carlos Beamin)
Conicyt-Redes 2015 (P.I. J. Borissova;)
Milenium Institute of Astrophyscs, MAS 2014 (Co.I. J. Borissova; R. Kurtev)

7 Committees and large collaborations

IFA members participated in 2015 in the following national and international committees

Sociedad Chilena de Astronomía, SOCHIAS, M. Vuckovic, Vice-president

Conicyt Advisory Committee for Astronomy, V. Motta, committee member

Fodecyt Grupo de Estudio Particulas, Cosmologia y Astronomia, J. Borissova, committee member

CNATC Advisory Committee, P. Arévalo, committee member

Telescope Time Allocation committees
ALMA: A. Bayo

CNTAC: P. Arévalo, M. Vuckovic
APEX: D. Gunawan
ESO OPC for P97: J. Olofsson
Gemini-South (Chilean Time): C. Tappert

China-Chile grants: A. Bayo

Gaia-ESO public survey: A. Bayo

VVV ESO Large public survey: J. Borisova, R.Kurtev

VLT/SPHERE GTO: J. Olofsson

Planet Formation Imager: A. Bayo, J. Olofsson (`http://www.planetformationimager.org/`)

SDSS IV membership, S. Kanaan (Lead scientist), J. Borissova, V. Motta and N. Medina

8 National and International Conferences

8.1 Organized by IFA members

First VLTI school in Chile, Valparaso (S. Kanaan organizer, Universidad de Valparaiso, 3-7 November 2014) The VLTI School usually takes place in europe or U.S.A. for the first time this school dedicated to teach stellar interferometry and how to use, observe and reduce data from VLTI was organized in Chile at the university of valparaiso with the collaboration of ESO (Chile) and JMMC (France).

The third La Serena School for Data Science (A. Bayo among the organizers, La Serena, 15-22 August 2015). The LA SERENA SCHOOL FOR DATA SCIENCE: Applied Tools for Astronomy is an intensive week of interdisciplinary lectures focused on applied tools for handling big astronomical data. Participants are instructed in how astronomical data are processed, accessed and analyzed, including reduction pipelines, databases, and scientific programming. The School is taught by an international and interdisciplinary group of professors who use real data and examples. (`http://www.aura-o.aura-astronomy.org/winter_school/`)

8.2 IFA members in Scientific Organizing Committees

XII SOCHIAS scientific meeting 2015, Puerto Varas, Chile (P. Arévalo)

XIII SOCHIAS scientific meeting 2016, Antofagasta, Chile (A. Bayo, E. Ibar)

TORUS 2015 : AGN Unification 30 Years On conference, Winchester, UK, 2015 (P. Arévalo)

Unveiling the AGN/galaxy evolution connection conference, Puerto Varas, Chile 2015 (P. Arévalo)

8.3 Attended (talks/posters)

Talks at XII SOCHIAS annual meeting 2015, Chile (E. Ibar, K. Rojas, M. Vuckovic)
Posters at XII SOCHIAS annual meeting 2015, Chile (C. Agurto, C. Arcos...)
Talk at "The Golden Age of Cataclysmic Variables and Related Objects III", Italy (S. Parsons)
Attended to "NBIA Summer School on Protoplanetary Disks and Planet Formation", 3-7 August,

Copenhague, Denmark. (D. Iglesias)
Talk at "Demographics and enviroment of AGN from multi-wavelength surveys", Greece (K. Rojas)
Talk at The golden age of cataclysmic variables and related objects III 2015, Palermo, Italy (I. Fuentes-Morales)
Talk at The golden age of cataclysmic variables and related objects III 2015, Palermo, Italy (C. Tappert)
Posters at ESO STEPS conference 2015, Garching, Germany (I. Fuentes-Morales & N. Vogt)
Talk at the "Grupo de Astrofísica, Cosmología y Gravitación Conference", Concepción, Chile (J. Villanueva)
Poster at "Verão Quãntico Conference 2015", João Pessoa, Brazil (J. Villanueva)
Talk at the "3th Cosmosur Conference 2015", Córdoba, Argentina (J. Villanueva)
Poster at LSST workshop 2015 (N. Godoy).
Poster at MAS workshop 2015 (N. Godoy)
Poster at "Modest 15", Chile (C. Navarro)
Talk at "6th VVV Science Meeting", Chile (C. Navarro)
Talk at the "LSST Workshop", Chile (M. Vuckovic)
Talk at the "Seventh Meeting on Hot Subdwarfs and Related Objects ", UK (M. Vuckovic)
Talk at MODEST-15, Concepción, Chile. March 2–6, 2015
Poster at "The soul of high-mass star formation", Puerto Varas, Chile. March 15–20, 2015.
Poster at "International workshop on Wolf-Rayet stars", Potsdam, Germany. June 1–5, 2015.
Poster at EWASS 2015, Tenerife, Spain. June 22–26.
Poster at DIUV 2015, Viña del Mar.
Talk at the "7th International Conference on Quarks and Nuclear Physics", Valparaíso, Chile. March 2–6, 2015. (A. Vega).
Talk at the "10th International Workshop on the Physics of Excited Nucleons", Osaka, Japan. May 25–28, 2015. (A. Vega).
Talk at the "6th International Conference on Physics Opportunities at an ElecTron-Ion Collider", Paliseau, France. September 7–11, 2015. (A. Vega).
Talk at the "Light Cone 2015", Frascati, Italy. September 21–25, 2015. (A. Vega).
Talk at the "Vatican VVV Workshop", Castelgandolfo, Italy 19-21 May, 2015. (R. Kurtev)
Talk at the "Rainbows on the Southern Sky: science and legacy value of the ESO Public Surveys and Large Programmes", ESO, Garching 05-09 October, 2015. (R. Kurtev)

9 Outreach activities

9.1 Public talks 2015

The IFA runs a cycle of public talks held monthly at the Centro de Extensión UV, Avenida Errázuriz 1108, Valparaíso, organized by Dr. N. Vogt with cooperation from M. Evans. The talks have a regular average attendance of 80 people, close to the capacity of the seminar room. In 2015 the speakers were:

March 21, Dr. Radostin Kurtev, UV
April 13, Dr. Fernando Comerón, ESO
May 4, Dr. Luis Campusano, U. de Chile
June 1, Dra. Amelia Bayo, UV
June 30, Mr. Claudio Navarro, UV
July 6, Ms. Karina Rojas, UV

August 3, Dr. Quintín Molina, UV
September 7, Dra. Patricia Arévalo, UV
October 5, Dra. Maja Vuckovic, UV
November 2, Dr. Michel Curé, UV
December 14, Dr. José Villanueva, UV

9.2 School talks

Members of IFA gave several outreach and educational talks as part of different events organized locally or nationally:

Temporales de ciencia (A. Bayo)
Día de la astronomía (A. Bayo) Week of science talks, 1000 ciéntificos en 1000 aulas (A. Bayo)
Temporales de ciencia (O. Cuevas)
Colegio C.E.I.A. (Centro Integrado de Educación de Adultos) de Quilpué (Carolina Agurto)
Colegio San Pedro Nolasco, Valparaíso (Carolina Agurto)
Colegio St. Paul. Jornada Vocacional, Via del Mar (Carolina Agurto)
Colegio Luterano de Valparaíso (Carolina Agurto)
Month of science and technology. Talks presented in Talca, Quilpué, Los Andes, Casablanca and Concon (I. Fuentes-Morales)
Descubriendo Estrellas Jóvenes en la Vía Láctea Liceo Rosa Ester Alessandri Rodríguez, Independencia (C. Navarro)
Escuela Básica Arturo Prat Chacón, Antofagasta, Week of science talks, EXPLORA program "1000 científicos en 1000 aulas" (S. Ramírez Alegría).
Colegio San José, Antofagasta. Invited talks in the "Día de la Ciencia", (S. Ramírez Alegría.
Colegio Eduardo de la Barra, Valparaíso (A. Vega).
Colegio SEK Pacífico, Con Con *Dá de la Ciencia*, (Three tals: R. Kurtev, V. Villanueva, J. Borissova)

9.3 Other talks

Carcajada científica, Puerto de Ideas Antofagasta (A. Bayo)
Public talks at Diego Portales (A. Bayo)
Panelist at the presentation of the adventure / outreach book "Cazadores de eclipses" (FILSA, A. Bayo)
Talk at the *Workshop en Desarrollo y Uso de Tecnologa Espacial* organized by the *Consejo de Ministros para el Desarrollo Espacial* (E. Ibar).
Talk at the *Disks and Plants Seminar*, organised by members from Universidad de Chile and Universidad Diego Portales (A. Hardy).
Charlas de Divulgación Científica 2015, Planetarium USACH, Santiago, (J.C. Beamín).
Episode podcast in the website http://astroblog.cl/episodio41/ (J.C. Beamín).
Talk at C.E.I.A. (Centro de Educaci´n Integrada de Adultos de Quilpué) (K. Rojas)
Talk at Centro cultural Limache, Valparaíso (K. Rojas)
Talk at Centro cultural Quillota, Valparaíso (K. Rojas)
Talks at Museo Fonk organized by Explora (K. Rojas, V. Villanueva, C. Agurto, I. Fuentes)
Public talk at Biblioteca Regional (Antofagasta) organized by Unidad de Astronomía, Universidad de Antofagasta. (Sebastián Ramírez Alegría)

9.4 Scientific Press-releases

The strange case of the missing dwarf: http://www.eso.org/public/unitedkingdom/news/eso1506/ (PI Hardy, PhD student)
https://www.eso.org/public/chile/news/eso1542/, J. Borissova

10 IFA Colloquia

The IFA regularly invites researchers from other institutes to give colloquia aimed at astronomy and physics graduate students, postdocs and faculty. The speakers invited during 2015 are listed below.

January 20, Dr. Franz Bauer (Pontificia Universidad Catolica, CHILE), "The High-redshift Universe through Nature's Lens"

March 19, Dr. Elena Manjavacas (Max Planck Institute fuer Astronomie, GERMANY), "Physical Characterization of Brown Dwarfs"

April 7, Dr. Gustavo Baume (Universidad de La Plata, ARGENTINA), "Young Stellar Clusters"

April 14, Dr. Xue-Jian Jiang (Purple Mountain Observatory, Chinese Academy of Sciences, China), "Cold Gas Fraction and Infrared Properties in Nearby Star-Forming Galaxies"

May 7, Dr. Michel Curé (Universidad de Valparaiso, CHILE), "Deconvolucin de velocidades de rotaci/'on estelar"

May 19, Dr. Francois Menard (Universidad de Chile, CHILE), "The rotation of the spiral arms in the disk of SAO 206462"

May 26, Dr. Aldo Valcarce (Pontificia Universidad Catolica, CHILE), "Globular clusters' peculiarities and their role for understanding the formation of the Galaxy"

June 2, Dr. Maxim Dvornikov (Universidad de Sao Paulo, BRAZIL), "New model of strong magnetic fields in magnetars"

June 9, Dr. Penelope Longa (University of Warwick, UNITED KINGDOM), "Finding Orbital Parameters of Accreting Compact Binaries with Doppler Tomography"

June 16, Andrea Schmessane (Universidad de Chile, CHILE), "Analogue Wave Phenomena, and Wood Anomalies in water waves"

June 23, Dr. Alejandra Muñoz (Pontificia Universidad Catolica, CHILE), "Properties of submillimeter galaxies in a semi-analytic model using the "Count Matching" approach: application to the ECDF-S"

June 30, Dr. Graeme Candlish (Universidad de Concepción), "Simulations of Modified Gravity"

July 14, Dr. Emanuele Farina (Max Planck Institute fuer Astronomie, GERMANY), "Understanding the z 6 Quasars Population: New Insights from Pan-STARRS1" August 4, Dr. Markus Schoeller (European Southern Observatory, GERMANY), "Gravity: Observing the Universe in Motion"

August 6, Dr. Dominik Schleicher (Universidad de Concepción), "Eclipsing time variations in post-common-envelope systems: Planetary hypothesis vs. Applegate mechanism"

August 11, Dr. Johan Olofsson (Universidad de Valparaiso, CHILE), "Dust mineralogy in proto-planetary and debris disks"

August 18, 2015, Dr. Manuel Aravena (Universidad Diego Portales, CHILE), "The Evolution of the ISM in Main-Sequence and Starburst Galaxies Across Cosmic Time: Motivation for ALMA Deep Fields"

August 25, Dr. Romain Thomas (Universidad de Valparaiso, CHILE), "New constraints on galaxy formation and evolution from high redshift galaxy ages"

September 1, 2015, Dra. Patricia B. Tissera (Universidad Andres Bello, CHILE), "Relationship between metallicity gradients and star formation activity in disc galaxies"

September 8, Dr. Mario Soto (Universidad de La Serena, CHILE), "Proper motions in the Galactic Bulge and Multiple Stellar Populations in Globular Clusters using HST"

September 22, Dr. Arthur Vigan (European Southern Observatory, CHILE), "Direct imaging of exoplanets with VLT/SPHERE"

September 25, Dr. Anna Pala (University of Warwick, UNITED KINGDOM), "A large HST program: effective temperatures of cataclysmic variable white dwarfs"

September 29, Dr. Federico Marocco (University of Hertfordshire, UNITED KINGDOM), "Spectroscopic analysis of a large sample of L and T dwarfs"

October 27, Dr. Fernando Buitrago (Institute for Astrophysics and Space Sciences, PORTUGAL), "Stellar Haloes surrounding Massive Galaxies at z=0.65 or how to use the HUDF for Nearby Universe Studies"

November 3, Dr. Paco Najarro (Centro de Astrobiología, SPAIN), "The Massive stellar population at the Galactic Center"

November 10, 2015, Dr. José Prieto (Universidad Diego Portales, CHILE), "The All-Sky Automated Survey for Supernovae"

November 24, 2015, Dra. Lucia Guaita (Osservatorio astronomico di Roma, ITALY), "The role of gas flows in the escape of Lya photons and galaxy evolution in star-forming galaxies"

December 15, Dr. Stefan Uttenthaler (University of Vienna, AUSTRIA), "Miras and semi-regular variables with changing pulsation periods"

11 Publications

The list below summarizes the refereed papers published in 2015 in WOS indexed journals (ISI), with at least one author affiliated to IFA (in bold face).

1. Allaert, F., Gentile, G., Baes, M., De Geyter, G., **Hughes, T. M.**, Lewis, F., Bianchi, S., De Looze, I., Fritz, J., Holwerda, B. W., Verstappen, J., Viaene, S., HERschel Observations of Edge-on Spirals (HEROES). II. Tilted-ring modelling of the atomic gas disks, 2015 A&A 582, A18

2. Alonso-García, J., Dékány, I., Catelan, M., Contreras Ramos, R., Gran, F., **Amigo, P.,** Leyton, P., Minniti, D., Variable Stars in the VVV Globular Clusters. I. 2MASS-GC 02 and Terzan 10, 2015 AJ 149, 99

3. Annuar, A., Gandhi, P., Alexander, D. M., Lansbury, G. B., **Arévalo, P.**, Ballantyne, D. R., Baloković, M., Bauer, F. E., Boggs, S. E., Brandt, W. N., Brightman, M., Christensen, F. E., Craig, W. W., Del Moro, A., Hailey, C. J., Harrison, F. A., Hickox, R. C., Matt, G., Puccetti, S., Ricci, C., et al., NuSTAR Observations of the Compton-thick Active Galactic Nucleus and Ultraluminous X-Ray Source Candidate in NGC 5643, 2015 ApJ 815, 36

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5. Bauer, F. E., **Arévalo, P.**, Walton, D. J., Koss, M. J., Puccetti, S., Gandhi, P., Stern, D., Alexander, D. M., Baloković, M., Boggs, S. E., Brandt, W. N., Brightman, M., Christensen, F. E., Comastri, A., Craig, W. W., Del Moro, A., Hailey, C. J., Harrison, F. A., Hickox, R., Luo, B., et al., NuSTAR Spectroscopy of Multi-component X-Ray Reflection from NGC 1068, 2015 ApJ 812, 116

6. Beamín, J. C., Ivanov, V. D., Minniti, D., Smart, R. L., Mužić, K., Mendez, R. A., Beletsky, Y., **Bayo, A., Gromadzki, M., Kurtev, R.**, Spectrophotometric characterization of high proper motion sources from WISE, 2015 MNRAS 454, 4054

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9. Brightman, M., Baloković, M., Stern, D., **Arévalo, P.**, Ballantyne, D. R., Bauer, F. E., Boggs, S. E., Craig, W. W., Christensen, F. E., Comastri, A., Fuerst, F., Gandhi, P., Hailey, C. J., Harrison, F. A., Hickox, R. C., Koss, M., LaMassa, S., Puccetti, S., Rivers, E., Vasudevan, R., et al., Determining the Covering Factor of Compton-thick Active Galactic Nuclei with NuSTAR, 2015 ApJ 805, 41

10. **Cáceres, C., Hardy, A., Schreiber, M. R., Cánovas, H.**, Cieza, L. A., Williams, J. P., Hales, A., Pinte, C., Ménard, F., Wahhaj, Z., On the Nature of the Tertiary Companion to FW Tau: ALMA CO Observations and SED Modeling, 2015 ApJL 806, L22

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14. **Cárdenas, V. H.**, **Herrera, O.**, Intermediate evolution using SNIa, and BAO, 2015 ApSS 359, 62

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