PHD IN

udp UNIVERSIDAD DIEGO PORTALES

astrophysics

DESCRIPTION

The Ph.D. in Astrophysics seeks to train graduates capable of developing original and independent research, contributing to the advance of the discipline. Candidates who successfully complete the program will be able to publish research in specialized publications and to join research-active institutions, including prestigious universities and world-class astronomical observatories.

The program is designed to have a strong emphasis on research activities starting from the first semester, and aims tocapitalize on Chile's enormous comparative advantage to conduct cutting-edge astronomical observation: the country currently hosts the world's most advanced.

Once the new generation of mega-telescopes currently under construction (E-ELT, GMT, and LSST) has been installed, 70% of the world's terrestrial astronomical infrastructure will be located on Chilean territory. Access to this cutting-edge astronomical instrumentation represents a unique opportunity for our students. Bearing in mind the top worldwide profile that Chilean astrophysics enjoys, the Ph.D. program is designed to be highly internationalized, and flexible enough to adapt to the needs and characteristics of a diverse international student body.

OBJECTIVES OR LINES OF RESEARCH

1. Astrophysics of Planetary Systems

Planetary formation, protoplanetary disks, extrasolar planets, cosmic dust laboratory.

2. Stellar and Galactic Astrophysics

Evolution of stars, stellar populations and abundance, galactic dynamics, galactic archaeology, galactic transients.

3. Extragalactic Astophysics

Galactic evolution over cosmic time, extragalactic transients, active galactic nuclei, supermassive black holes, dwarf galaxies, extragalactic stellar populations.

STRUCTURE OF THE PROGRAM

COURSEWORK STAGE	
I SEMESTER	
Stellar and Galactic Astrophysics	8 credits
Research Assignment I	16 credits
Topics in Astrophysics I (colloquium/astro-ph)	6 credits
II SEMESTER	
Astrophysics of Planetary Systems or optional course	8 credits
Research Assignment II	16 credits
Topics in Astrophysics II (colloquium /astro-ph)	6 credits
III SEMESTER	
Extragaláctica Astrophysics or optional course	8 credits
Thesis Project	16 credits
Topics in Astrophysics III (colloquium /astro-ph)	6 credits
QUALIFYING EXAM	

THESIS STAGE	
IV SEMESTER	
Doctoral Thesis I	30 credits
V SEMESTER	
Doctoral Thesis II	30 credits
VI SEMESTER	
Doctoral Thesis III	30 credits
VII SEMESTER	
Doctoral Thesis IV	30 credits
VIII SEMESTER	
Doctoral Thesis V	30 credits
DEFENSE	

MANUEL ARAVENA
Ph.D. in Astronomy, 2009. University of Bonn and the Max-Planck Institute for Radioastronomy, Germany. Postdoctoral researcher at the National Radio Astronomy Observatory in Charlottesville, USA (2009-2011); European Southern Observatory (ESO) Fellow in Santiago, Chile (2011-2014). Faculty member at UDP since 2014. Member of the Science Advisory Committee of ALMA 2016- 2019. Director of the group since 2021.
Publications: 148 ISI/WoS with >6000 citations; H-index=45. Lead author on 15 papers, with >600 citations.
Main research interests: Galaxy formation and evolution, interstellar medium, submillimeter galaxies, radio and submillimeter astronomy.
Area of the doctoral program: Extragalactic astrophysics .

ROBERTO ASSEF
Ph.D. in Astronomy, 2010, The Ohio State University, USA. NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory (2010-2013). Faculty member at UDP since 2013. Director of the group from 2017 to 2021.
Publications: more than 119 ISI-WoS articles, with over 6,600 total citations. H-index=47. Lead author on 14 ISI/WoS papers, with over 1000 total citations.
Main research interests: Nuclei of active galaxies, supermassive black holes and the evolution of galaxies.
Area of the doctoral program: Extragalactic astrophysics.

LUCAS CIEZA
Ph.D. in Astronomy, 2007, University of Texas at Austin, USA. Spitzer and Sagan Fellow (NASA), University of Hawaii (2007-2013). Faculty member at UDP since 2013. Director of the Astronomy Nucleus during 2015 and 2016. Director of the Doctoral Program in Astrophysics.
Publications: more than 115 papers ISI/WoS papers, with more than 6,300 citations. H-Index = 40. Lead author on 20 ISI/WoS papers with more than 1130 citations.
Main research interests: Protoplanetary Disks and planetary formation. Cosmic Dust Laboratory.
Area of the doctoral program: Astrophysics of planetary systems. **JAMES JENKINS**
Ph.D, in Astrophysics, 2007, University of Hertfordshire, UK.
PRVS Postdoctoral Fellow, Pennsylvania State University, USA (2007-2008).
Postdoctoral fellow, Universidad de Chile (2008-2013).
Publications: Has published over 159 papers ISI/WoS with >4300 citations. H-index= 35.
Lead author of 16 papers ISI/WoS (ApJ, MNRAS, A&A, Nature Astronomy) with >580 citations.
PI of project Calan-Hertfordshire Extrasolar Planet Search, (2009-present).
Associate researcher of CATA Project (2013-2021). PI of CATA Project (2021-present).
Member of the Next Generation Transit Survey (2016-present) and the Red Dots

Proyect (2015-present).
Main research interests: Search and characterization of exoplanets using radial velocities and transits. Stellar atmospheres and stellar activity.
Area of the doctoral program: Astrophysics of Planetary Systems. Stellar and galactic astrophysics.

PAULA JOFRÉ
Doctor in Natural Sciences, 2010, Ludwig Maximilian University and the Max Planck Institute for Astrophysics, Germany. Post-doctoral researcher at the Laboratoire d'Astrophysique of Bordeaux, France (2011-2013), and at the Institute of Astronomy, University of Cambridge, England (2013-2017). Member of King's College, Cambridge (2015-present). Faculty member at UDP since 2017.
Publications: more than 123 ISI/WoS papers with a total of more than 8,900 citations. H-Index=41. Lead author on 13 ISI/WoS papers, with more than 650 citations.
Main research interests: Stellar astrophysics and the formation y evolution of the Milky Way.
Area of the doctoral program: Stellar and galactic astrophysics.

JAMES JENKINS
Ph.D. en Astrofísica, 2007, Universidad de Hertfordshire, Reino Unido.
Becario Postdoctoral PRVS, Universidad Estatal de Pennsylvania, Estados Unidos. (2007-2008).
Becario Postdoctoral, Universidad de Chile. (2008-2013).
Publicaciones: Ha publicado más de 159 artículos ISI/WoS con >4300 citas. Índice H= 35. Autor principal de 16 artículos ISI/WoS (ApJ, MNRAS, A&A, Nature Astronomy) con >580 citas.
PI del proyecto Calan-Hertfordshire Extrasolar Planet Search, (2009-presente).
Investigador asociado del Proyecto CATA (2013-2021). PI del Proyecto CATA (2021-presente).
Miembro de Next Generation Transit Survey (2016-presente) y Red Dots Proyect (2015-presente).
Principales líneas de investigación: Búsqueda y caracterización de exoplanetas utilizando velocidades y tránsitos radiales. Atmósferas estelares y actividad estelar.
Área del programa: Astrofísica de sistemas planetarios. Astrofísica estelar y galáctica.

EVELYN JOHNSTON
Ph.D. in Astronomy, 2015, University of Nottingham, UK. ESO fellow in Chile with duties at Paranal observatory (2014-2018), and FONDECYT Fellow at the Pontificia Universidad Católica de Chile (2018-2020). Faculty member at UDP since 2021.
Publications: more than 18 ISI/WoS papers with a total of >1140 citations. H-Index=8. Lead author on 11 ISI/WoS papers with more than 190 citations.
Main research interests: Galaxy evolution, dwarf galaxies, S0 galaxies, transformation of galaxy morphology, extragalactic stellar populations.
Area of the doctoral program: Extragalactic astrophysics, stellar astrophysics.

FACULTY

JOSÉ LUIS PRIETO
Ph.D. Astronomy, 2009, Ohio State University, USA. Hubble (NASA) and Carnegie-Princeton Fellow, Carnegie Observatories (2009-2011) and Princeton University (2011-2014). Faculty member at UDP since 2014.
Publications: more than 233 ISI/WoS papers, with more than 18,000 citations. H-Index= 62. Lead author on 11 ISI/WoS papers (ApJ and ApJL) with more than 1,170 citations.
Main research interests: Supernova explosions, massive stars, transient objects and variable stars.
Area of the doctoral program: Stellar and galactic astrophysics; extragalactic astrophysics.

CLAUDIO RICCI
Ph.D. in Astronomy, 2011, Université de Gèneve, Switzerland. JSPS Fellow, Kyoto University (2012-2014); Postdoctoral Fellow, Pontificia Universidad Católica de Chile (2015-2016); China/ Conicyt fellow (2016-2018). Faculty member at UDP since 2018.
Publications: more than 140 ISI/WoS papers, with >4,200 citations. H-Index=35. Lead author on 17 ISI/WoS papers with >1,000 citations.
Main research interests: Supermassive black holes, evolution of galaxies, high-energy astrophysics.
Area of the doctoral program: Extragalactic astrophysics.

BIN YANG
Ph.D. In Astronomy, 2009, University of Hawaii, USA.
Astrobiology Fellow (NASA), University of Hawaii (2009-2013).
European Southern Observatory (ESO) Fellow (2013-2016).
Faculty astronomer at ESO (2016-2022). Faculty member at UDP since 2022.
Publications: Has published over 80 ISI/WoS papers, with >1700 citations. H-Index = 25.
Lead author on 18 ISI/WoS papers (ApJL, AJ, A&A, Nature Astronomy) with > 260 citations.
Main research interests: Primitive small bodies (asteroids, comets), planet formation, astrobiology.
Area of the doctoral program: Astrophysics of planetary systems.

ALICE ZURLO
Ph.D. in Astronomy, 2015, Università degli Studi di Padova, Italy. Postdoctoral scholarship at the Universidad Diego Portales (2015- 2018), initially with the Protoplanetary Disks 'Núcleo Milenio' project and later under the postdoctoral program of national research funding agency FONDECYT. Faculty member at UDP since 2018. Member of the VLT/SPHERE. disk and planetary detection team.
Publications: more than 120 ISI/WoS papers. H-Index = 32, with more than 3,600 citations. First author of 9 papers ISI/WoS with more than 250 citations.
Main research interests: Exoplanets and protoplanetary disks, direct imaging technique, high resolution and high contrast imaging and electroscopy, low mass companions.
Area of the doctoral program: Astrophysics of planetary systems.

APPLICANT PROFILE

The program is aimed at applicants holding a bachelor's or master's degree in astronomy or related fields (physics, planetary sciences, etc.). Applicants are expected to have excellent grades in their previous studies, some experience in research projects, and a very high level of motivation for astronomy research. Applicants must also have a good English level (reading comprehension is essential; oral and writing skills are desirable), and must be in a position to dedicate themselves full-time to the doctoral program.

APPLICAT ION PROCEDURE

- Cover letter setting out the applicant's research interests and reasons to undertake the doctoral program.
- Currículum Vitae.
- Grades transcript from undergraduate degree, and postgraduate studies if applicable.
- Degree certificate, or letter from the awarding university specifying when the award can be expected.
- A minimum of two, and maximum of three, letters of recommendation (references).
  Lucas Cieza,

FOR FURTHER INFORMATION, PLEASE CONTACT

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postgrados.udp.cl/programas/doctorado-en-astrofisica

ADMISSION 2024

Modality	On-site

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