

# Juan Pablo Hidalgo

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## Profile

I am PhD student interested in the origin of the large-scale magnetic fields in early-type stars. I explore different scenarios that can lead to the formation and evolution of these magnetic fields, using magnetohydrodynamic simulations.

## Education

### PhD in Astronomy, Astrophysics and Space Science

- Sapienza Università di Roma, 40th cycle student ([link](#))  
Supervisor: Prof. Dominik Schleicher, co-supervisor: Dr. Petri Käpylä

Rome, Italy  
Nov 2024 – now

### MSc in Astronomy

- Universidad de Concepción (Final grade 6.8/7.0)  
Supervisor: Prof. Dominik Schleicher
- Thesis: *Origin of magnetism in early-type stars. Protostellar magnetic fields and core dynamo* ([link](#))

Concepción, Chile  
Mar 2022 – Nov 2023

### BSc in Astronomy

- Universidad de Concepción (Final grade 6.5/7.0)

Concepción, Chile  
Mar 2018 – Dec 2021

### Basic and Secondary Education

- Colegio Academia Tarapacá

Iquique, Chile  
Mar 2005 – Dec 2016

## Scholarships and experience

### ANID/DOCTORADO BECAS CHILE 72240057

- Chilean funding for a PhD abroad ([page 15, in Spanish](#))

PhD Scholarship  
Nov 2024 – now

**ANID Project QUIMAL 220002:** *The next step for astrophysical supercomputing in Chile: a powerful GPU-server for fluid and stellar dynamics* (PI: Prof. Dominik Schleicher)

- Magnetohydrodynamic simulations were performed with high-power graphics cards

Technical staff  
Mar 2024 – Aug 2024

**ANID Project FB210003:** *Centro de Excelencia en Astrofísica y Tecnologías Afines (CATA)*

- Numerical simulations of the core dynamo in A-type stars were performed. Dipolar magnetic field configurations were implemented in the PENCIL CODE

Technical staff  
May 2023 – Jun 2024

**ANID Fondecyt regular 1201280:** *Eclipsing time variations in post-common-envelope binaries: planetary hypothesis vs magnetic activity* (PI: Prof. Dominik Schleicher)

- Study magnetism in stars through stellar dynamo simulations

Thesis student  
Apr 2023 – Nov 2023

**Beca Adelina Gutiérrez:** *Development of an A-type star model*

- Funding from The Chilean Astronomical Society (SOCHIAS) ([link, in Spanish](#))

Additional support  
Apr 2023

## Publications

### Shaping core dynamos in A-type stars: The role of dipolar fossil fields

Jul 2025

**J. P. Hidalgo**, P. J. Käpylä, D. R. G. Schleicher, C. A. Ortiz-Rodríguez & F. H. Navarrete

Astronomy & Astrophysics, 699, A250 ([link](#))

<b>Magnetohydrodynamic simulations of A-type stars: Rotational scaling of dynamo cycles</b>	Nov 2024
<i>J. P. Hidalgo</i> , P. J. Käpylä, D. R. G. Schleicher, C. A. Ortiz-Rodríguez & F. H. Navarrete Astronomy & Astrophysics, 691, A326 ( <a href="#">link</a> )	
<b>Core dynamo simulations of A-type stars</b>	Aug 2024
<i>J. P. Hidalgo</i> , P. J. Käpylä, C. A. Ortiz-Rodríguez, F. H. Navarrete, D. R. G. Schleicher & B. Toro-Velásquez Boletín de la Asociación Argentina de Astronomía, 65 ( <a href="#">link</a> )	
<b>Survival of fossil fields during the pre-main sequence evolution</b>	Oct 2023
D. R. G. Schleicher, <i>J. P. Hidalgo</i> & D. Galli Astronomy & Astrophysics, 678, A204 ( <a href="#">link</a> )	
<b>Simulations of dynamo action in slowly rotating M dwarfs: Dependence on dimensionless parameters</b>	Oct 2023
C. A. Ortiz-Rodríguez, P. J. Käpylä, F. H. Navarrete, D. R. G. Schleicher, <i>J. P. Hidalgo</i> & B. Toro. Astronomy & Astrophysics, 678, 82 ( <a href="#">link</a> )	
<b>Origin of magnetism in early-type stars</b>	Aug 2023
<i>J. P. Hidalgo</i> , P. J. Käpylä, C. A. Ortiz-Rodríguez, F. H. Navarrete, B. Toro & D. R. G. Schleicher Boletín de la Asociación Argentina de Astronomía, 64 ( <a href="#">link</a> )	

## Conferences

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<b>The 2024 Pencil Code User Meeting</b>	Barcelona, Spain Sep 23 – 27, 2024
• Universitat Autònoma de Barcelona. <a href="#">Talk</a>	
<b>XVII Latin American Regional IAU Meeting</b>	Montevideo, Uruguay Nov 27 – Dec 1, 2023
• Centro de Conferencias of the Intendencia de Montevideo. <a href="#">Poster</a>	
<b>65<sup>th</sup> Annual Meeting of the Argentine Astronomy Association</b>	San Juan, Argentina Sep 18 – 22, 2023
• Universidad Nacional de San Juan. <a href="#">Talk</a>	
<b>2<sup>nd</sup> Annual Meeting of the CATA Astrophysics Center</b>	Santiago, Chile Aug 01 – 03, 2023
• Hotel Pullman Santiago El Bosque.	
<b>XVIII SOCHIAS meeting</b>	Temuco, Chile Mar 13 – 16, 2023
• Universidad de La Frontera. <a href="#">Talk</a>	
<b>Theoretical astrophysics meeting (Area 7)</b>	Concepción, Chile Nov 07 – 08, 2022
• Universidad de Concepción. <a href="#">Talk</a>	
<b>64<sup>th</sup> Annual Meeting of the Argentine Astronomy Association</b>	Buenos Aires, Argentina Sep 19 – 23, 2022
• Universidad de Buenos Aires. <a href="#">Poster</a>	

## Internships

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<b>Institute for Solar Physics (KIS)</b>	Freiburg, Germany Jun 10 – 14, 2025
<ul style="list-style-type: none"> <li>Supervised by Dr. Petri Käpylä.</li> <li>Visit + seminar talk (KIS Colloquium)</li> <li>Development of a pre-main-sequence star-in-a-box setup</li> </ul>	
<b>INAF Osservatorio Astrofisico di Arcetri</b>	Florence, Italy Dec 12 – 13, 2024
<ul style="list-style-type: none"> <li>Supervised by Dr. Daniele Galli</li> <li>Visit + seminar talk</li> </ul>	

### **Institute for Solar Physics (KIS)**

- Supervised by Dr. Petri Käpylä.
- Development of the *zoom setup* presented [here](#)

Freiburg, Germany  
Jun 19 – Jul 09, 2023

### **Hamburg Observatory**

- Supervised by the group of Prof. Robi Banerjee.
- Visit + seminar talk

Hamburg, Germany  
Jul 10 – 16, 2023

## **Teaching and outreach**

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### **Outreach talk:** *El Gran Apagón: Explorando el fin de la Vida Estelar* (highschool level)

- Instituto de Humanidades de Concepción

Concepción, Chile  
Mar 19, 2024

### **Teaching assistant for the Cosmology course**

- Course for 1st-year master students at Universidad de Concepción
- Weekly exercise blocks, and homework correction

Concepción, Chile  
2023 – 2024

### **Teaching assistant for the Stellar Astrophysics course**

- Course for 3rd-year undergraduate students at Universidad de Concepción
- Weekly exercise blocks, and homework correction

Concepción, Chile  
2022 – 2023

## **Additional courses**

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### **[HYBRID] High-Performance Computing (HPC) Visualisation workshop**

- Barcelona Supercomputing Center (online participation)

Barcelona, Spain  
May 14 – 15, 2025

### **Academic Writing and Effective Communication Workshop**

- Universidad de Concepción (Dirección de Postgrado) ([link, in Spanish](#))

Concepción, Chile  
Aug 16 – 18, 2022

### **Intellectual Property Workshop**

- Universidad de Concepción (Dirección de Postgrado)

Concepción, Chile  
Oct 27, 2022

### **Astrophysical Dynamos**

- Online lectures by Dr. Petri Käpylä

Online  
Jan 24 – 28, 2022

### **Spring School in Applied Mathematics**

- Universidad del Bío-Bío ([link, in Spanish](#))

Concepción, Chile  
Oct 18 – 22, 2021

### **Introduction to the publication of a scientific article**

- IOPscience ([link, in Spanish](#))

Online  
Jun 04, 2021

## **Languages**

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**Spanish** (native), **English** (advanced), **Polish** (beginner).