

FONDECYT Fellow – Universidad de Chile  
Dec 2017, Santiago, Chile

E-mail: [info@gesabertrang.com](mailto:info@gesabertrang.com)  
Website: [www.gesabertrang.com](http://www.gesabertrang.com)

## Education

- Apr 2011 - Sep 2015 **PhD (Dr. rer. nat.) in astrophysics**  
*Thesis: “Observations and simulations of polarized radiation as tracer of magnetic fields in star formation”*  
Kiel University, Supervisor: Sebastian Wolf
- Oct 2011 Basic certificate in university didactics
- Apr 2008 - Nov 2010 **Diplom in physics (Dipl.-Phys.)**  
Kiel University, Supervisor: Sebastian Wolf
- Oct 2005 - Apr 2008 **Vordiplom in physics**  
Kiel University

## Academic Experience

- since Mar 2017 **Post-doctoral Fellow (FONDECYT Fellowship; ~ 125,000 USD)**  
Universidad de Chile, Advisor: Laura Perez
- Oct 2015 – Mar 2017 **Post-doctoral Fellow (MAD Fellowship; ~ 112,000 USD)**  
Universidad de Chile & Universidad Diego Portales,  
Advisors: Simon Casassus & Lucas Cieza
- Nov 2010 – Sep 2015 **Research assistant in astrophysics**  
Kiel University, Supervisor: Sebastian Wolf
- Oct 2008 – Oct 2010 **Research student in astrophysics**  
Kiel University, Supervisor: Sebastian Wolf

## Teaching and mentoring

- since March 2017 **Supervisor of B.Sc. student Sebastián Jorquera**  
*“Magnetic fields in Bok globules - reduction and analysis of polarized data obtained with SOFI/NTT”*; Universidad de Chile
- Apr 2014 – Sep 2014 **Teaching assistant**  
**“Physik IV (Kern-, Teilchen-, Astrophysik und Kosmologie)”**  
*(“Physics IV (nuclear physics, particle physics, astrophysics and cosmology)”*);  
Kiel University  
*Level: undergraduate course, responsible for grading exams.*
- Oct 2011 – Mar 2012 **Teaching assistant**  
**“Elementare mathematische Methoden der Physik I”**  
*(“Elementary mathematical methods in physics I”*); Kiel University  
*Level: undergraduate course*
- Apr 2011 – Sep 2011 **Teaching assistant**  
**“Elementare mathematische Methoden der Physik II”**  
*(“Elementary mathematical methods in physics II”*); Kiel University  
*Level: undergraduate course*
- 2011-2014 **Observer at various oral exams (B.Sc., M.Sc./Diploma levels)**

## Professional and Academic Service

2015-2017	<b>Disk-and-Planet seminar (co-organizer)</b> Bi-weekly seminar series at U. Chile, PUC, UDP, and U. Valparaiso, Chile
Sep 2014	<b>Local organizing committee, "Planet Formation and Evolution 2014"</b> Conference in Kiel, Germany
Oct 2012 – Sep 2014	<b>Section committee of the physics department of Kiel University</b> Representative of research assistants and associates
July 2010	<b>Local organizing committee, "Second Chinese-German Workshop on Star and Planet Formation"</b> Conference in Kiel, Germany

## Publications

- "HD 169142 in the eyes of ZIMPOL/SPHERE"  
**Bertrang, G. H.-M.**, Avenhaus, H., Casassus, S. et al., 2018, MNRAS, in press
- "3D radiative transfer of intrinsically polarized dust emission based on aligned aspherical grains"  
**Bertrang, G. H.-M.**, Wolf, S., 2017, MNRAS, 469, 2869
- "Magnetic fields in protoplanetary discs: from MHD simulations to ALMA observations"  
**Bertrang, G. H.-M.**, Flock, M., Wolf, S., 2017, MNRASL, 464L, 61B
- "Large-scale magnetic fields in Bok globules"  
**Bertrang, G.**, Wolf, S., Das, H. S., 2014, A&A, 565, A94
- "Radiation Hydrodynamical Turbulence in Protoplanetary Disks: Numerical Models and Observational Constraints"  
Flock, M., Nelson, R., Turner, N. J., **Bertrang, G. H.-M.** et al., 2017, accepted for ApJ
- "Orbits in the T Tauri triple system observed with SPHERE"  
Köhler, R., Kasper, M., Herbst, T. M., Ratzka, T., **Bertrang, G. H.-M.**, 2016, A&A, 587, 35K
- "An extreme-AO search for giant planets around a white dwarf. VLT/SPHERE performance on a faint target GD 50"  
Xu, S., Ertel, S., Wahhaj, Z., Milli, J., Scicluna, P., **Bertrang, G. H.-M.**, 2015, A&A, 579, 8X
- "Polarimetric studies of Comet C/2009 P1 (Garradd)"  
Das, H. S., Medhi, B. J., Wolf, S., **Bertrang, G.** et al., 2013, MNRAS, 436, 3500

## Invited Talks (*selected*)

- JAO Colloquium, Chile, Mar 2018  
*tbd*
- Universidad de Valparaiso, Instituto de Física y Astronomía, Chile, Nov 2017  
*Magnetic fields in PPDs and what we can learn from polarimetry*
- Universidad de Concepción, Departamento de Astronomía, Chile, Nov 2017  
*Magnetic fields in star and planet formation*
- University of Vienna, Institute of Astronomy, Austria, Sep 2017  
*Magnetic fields in PPDs and what we can learn from polarimetry*

## Invited Talks *(selected; continued)*

- Max Planck Institute for Astronomy (MPIA), Germany, Aug 2017  
*HD 169142 in the eyes of ZIMPOL/SPHERE*
- Observatory of Lisbon, Portugal, Jul 2017  
*Magnetic fields in PPDs and what we can learn from polarimetry*
- ETH Zurich, Institute for Astronomy, Switzerland, Jan 2017  
*HD 169142 in the eyes of ZIMPOL*
- Institut de Planétologie et d'Astrophysique de Grenoble (IPAG), France, Oct 2016  
*Magnetic fields in protoplanetary disks: from MHD simulations to ALMA observations*
- Max Planck Institute for Astronomy (MPIA), Germany, Aug 2016  
*Magnetic fields in protoplanetary disks: from MHD simulations to ALMA observations*
- Kiel University, Institute for Theoretical Physics and Astrophysics, Germany, Sep 2016  
*Astonishing new details on HD*
- Pontificia Universidad Católica (PUC), Institute of Astrophysics, Chile, Jan 2016  
*Large-scale magnetic fields in Bok globules*
- ESO Santiago Science Colloquium, Chile, Nov 2015  
*Large-scale magnetic fields in Bok globules*
- ESO Santiago Science Colloquium, Chile, Jan 2013  
*Magnetic fields in Bok globules*

## Awards and Fellowships

2017 - now	<b>FONDECYT Fellowship</b> (~ 125,000 USD) at Universidad de Chile, Santiago, Chile
2015 - 2017	<b>Postdoctoral Fellowship</b> within the Millennium ALMA Disk nucleus (MAD; ~ 112,000 USD) at Universidad de Chile and Universidad Diego Portales, Santiago, Chile
Jun 2005	<b>DPG-Abitur-Sonderpreis</b> for outstanding performance in physics (Deutsche Physikalische Gesellschaft High School Graduate Special Award)
Jun 2005	<b>DPG-Abiturpreis</b> for very good performance in physics (Deutsche Physikalische Gesellschaft High School Graduate Award)

## Observing Record

Total awarded observing time as PI: 134 hours

Year	Telescope (Instrument)	Alloc. time	Program Number (PI/CO-I): Title
2017	VLT (SPHERE)	1.2 hrs	0101.C – 0595.S ( <b>PI</b> ): <i>Bringing disks to life: tracing the short-time dynamics in a protoplanetary disk</i>
	ALMA	18.3 hrs	2017.1.00892.S ( <b>PI</b> ): <i>The nature of continuum polarisation in protoplanetary disks</i>
	ALMA	8.8 hrs	2017.1.00007.S ( <b>CO-I</b> ): <i>ODISEA: Ophiuchus Disk Survey Employing ALMA</i>
	ALMA	8.8 hrs	2017.1.00416.S ( <b>CO-I</b> ): <i>ALMA Observations of HBC 494: Gravitational Instability Clump or Interacting Disks?</i>
	VLT (SPHERE)	5 hrs	099.C – 0264(A) ( <b>CO-I</b> ): <i>Are There Giant Planets around Polluted White Dwarfs?</i>
2016	APEX (ARTEMIS)	18.6 hrs	C–097.F–9704C–2016 ( <b>PI, visitor, 7 days</b> ): <i>The nature and origin of the Solar system scale disk in the Helix Nebula: Complementing ALMA.</i>
	ALMA	1.4 hrs	2016.1.00545.S ( <b>CO-I</b> ): <i>A complete demographic study of the Ophiuchus disk population</i>
	VLT (SPHERE)	2 nights	098.C – 0486(A) ( <b>CO-I</b> ): <i>From flared to flat or different evolutionary pathways? Understanding planet formation and TTauri disk evolution through an IRDIS/DPI imaging survey in scattered light</i>
	VLT (SPHERE)	0.2 nights	097.D – 0646(A) ( <b>CO-I</b> ): <i>A search for low mass companions in the innermost regions of the Helix Nebula</i>
	VLT (SPHERE)	0.7 nights	097.D – 0385(A) ( <b>CO-I</b> ): <i>First extreme adaptive optics, multi-wavelength imaging of an optically thick disk around a post-Asymptotic Giant Branch binary.</i>
2015	NTT (SOFI)	5 nights	096.C–0115(A) ( <b>PI, visitor</b> ): <i>Revealing the magnetic field strength and structure of Bok globules on a wide range of scales.</i>
	ALMA	3.5 hrs	2015.1.00762.S ( <b>CO-I</b> ): <i>The nature and origin of the Solar system scale disk in the Helix Nebula</i>
2014	VLT (SPHERE)	1.1 hrs	60.A–9373(A) ( <b>CO-I</b> ): <i>Are There Jupiter Analogs around White Dwarfs?</i>

---

Year	Telescope (Instrument)	Alloc. time	Program Number (PI/CO-I): Title
2013	NTT (SOFI)	3 nights	090.C-0785(A) ( <b>PI, visitor</b> ): <i>Connecting large and small-scale magnetic field structures in Bok globules</i>
	IGO* (IFOSC)	2 nights	2013A_010 ( <b>CO-I</b> ): <i>Connecting the large and small-scale magnetic field structure in the Bok globule CB68</i>
2012	VLT (ISAAC)	15.6 hrs	089.C-0846(A) ( <b>PI</b> ): <i>Connecting large and small-scale magnetic field structures in Bok globules</i>
	IGO (IFOSC)	1 night	2012B_009 ( <b>CO-I</b> ): <i>The magnetic field strength and structure of the Bok globule CB17</i>
	IGO (IFOSC)	2 nights	2012A_013 ( <b>CO-I, visitor</b> ): <i>Connecting the large and small-scale magnetic field structure in the Bok globule CB68</i>

---

<sup>0</sup>\*Inter-University Centre for Astronomy and Astrophysics (IUCAA) Girawali Observatory, India