

# Sebastián Pérez | CV

Dr./Prof. in Astrophysicist at U. de Santiago de Chile – Artist

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## Summary

My main lines of research as an astrophysicist are protoplanetary disk studies and the process of planet formation. Some of my latest papers include observability of planet formation in the gas kinematics, protoplanetary disk observations with ALMA, 3D hydrodynamic simulations of planet-disk interactions, and study of the accretion phenomena in protostars. I lead the Disks Around TTauri stars with ALMA (DARTTS-A) project as well as several ALMA rank-A programs.

I authored the children's book *Cazadores de eclipses*, a novel aimed at sharing the essentials of scientific exploration and discovery (mainly through astronomy) and promote women in science (there are five thousand copies distributed in public schools). I lead projects on embodied learning applied to astrophysical phenomena, the art-science interplay and general outreach and education. I have 12 years of research experience, 7 years of teaching and mentoring, and 6 years of experience in art-science inbetweenness.

## Employment

Astrophysics Professor at Universidad de Santiago de Chile.

## Research experience and funding

<b>Gemini-CONICYT research fellowship</b> <i>Main line of research: Hydrodynamics and observations of planet formation</i>	<b>Universidad de Chile</b> 2017–2019
<b>FONDECYT Postdoc, young researcher at MAD</b> <i>Main line of research: Modelling and observing on-going planet formation</i>	<b>Universidad de Chile</b> 2014–2017
<b>Millennium Nucleus on Protoplanetary Disks Postdoc</b> <i>Main line of research: Protoplanetary disks research with ALMA</i>	<b>MAD, U. Chile</b> 2011–2014
<b>Postdoctoral fellow (STFC PDRA)</b> <i>Main line of research: accretion disks around black holes with jets (microquasars)</i>	<b>University of Oxford</b> 2009–2011

## Education

<b>Doctor of Philosophy, PhD</b> <i>Inflow and outflow in stellar mass black holes. Supervisor: Prof. K. M. Blundell</i>	<b>University of Oxford</b> 2006–2009
<b>Licenciatura en Ciencias mención Astronomía, BSc</b> <i>Graduated with distinction equivalent to a First-class honour (1st).</i>	<b>Universidad de Chile</b> 2002–2005

## Publications (WoS/ISI indexing, peer-reviewed)

37 publications in peer-reviewed international journals with 1180 citations, 18 of which as either 1st, 2nd or 3rd author with 760 citations (as of Feb. 2019). *h*-index: 19.

See list of publications at the end or click on: [Classic NASA ADS](#) or [Smithsonian/NASA ADS](#)

## Synergetic projects on art, education, outreach and science

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- Director of **Concierto Cielos** project on convergence between music and astronomy. [www.conciertocielos.cl](http://www.conciertocielos.cl).
- Director of **Recreo Espacial** an embodied learning project for education and motivation into science through experiential activities related to astrophysical concepts (2016–2019). [recreo.das.uchile.cl](http://recreo.das.uchile.cl).
- Author of the children's astronomy novel **Bitácora Planetaria: Cazadores de Eclipses**, 2016, LOM Ediciones, funded via Milenio PME. 2nd edition. About 5.000 copies distributed at schools and general public so far.

**AATS 2014:** Director of the Art, Astronomy, Technology and Society initiative. In which I produced:

- Art+Astronomy Day at Contemporary Arts Museum (MAC, Santiago) for artists, educators and the public.
- Art+Astronomy Incubator initiative. Coordination of 4 projects led by pairs of artists and astronomers.

**Immersive installation AATS 2013 “El Origen del Sistema Solar”:** Scientist in residency at National Contemporary Arts museum (lead by artist Olaf Peña).

## Grants

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### Science grants and awards.....

**2019:** FONDECYT Regular grant (as PI). Four years. ~270k USD.

**2018:** ESO-Chile comité mixto grant for funding astrophysics professorship at USACH. Two years. ~90k USD.

**2017:** FONDECYT Regular grant (as co-investigator).

**2015:** FONDEQUIP grant (100k USD) for GPU Cluster for hydro 3D simulations (PI-ed along with S. Casassus).

**2014:** FONDECYT Postdoctoral fellowship (120k USD).

**2008:** St John's college Oxford Special Grant for research excellence.

**2006:** PPARC (STFC) PhD Studentship – Particle Physics and Astronomy Research Council (PPARC UK). I was awarded the only such studentship available for South American students.

**2005:** Outstanding Undergraduate Student at Universidad de Chile (top 10% students of Physics and Math).

### Art grants and residencies.....

**2018:** Fondo de la Música (Fondos de Cultura, Chile) to make a record of the charango concerto based on the fundamental laws of astronomy (composer A. Yermakova in collaboration with S. Perez). 15k USD.

**2018:** Djerassi Artist Residency for the Scientific Delirium Madness art+science program, to explore and expand how the creativity of scientists and artists are connected. San Francisco, CA, USA. June 2018.

**2016-2017:** Research grant on embodied learning applied to astronomy (20k USD) via Iniciativa Milenio (PME MAD program, along with S. Casassus, A. Yermakova).

**2015:** Grant to create, illustrate, publish and distribute a children's book about astronomy to encourage Women in Science (20k USD) via Iniciativa Milenio (PME MAD program).

**2014:** Outreach grant to fund art+astronomy initiatives “AATS 2014” (20k USD), along with S. Casassus, via Iniciativa Milenio (PME MAD program).

## Review panel invitations and other services

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- ALMA Science Assessor (2017-2019), Category 4 Circumstellar disks, exoplanets and the solar system.
- Science Assessor and evaluator for graduate travel scholarships/funding at U. de Chile.
- Science Assessor and evaluator for XXI Concurso de Proyectos Explora, Conicyt.
- Referee on major astronomy journals ApJ, ApJ Letters, A&A and MNRAS.

## Experience as supervisor and teacher

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**U. de Chile (2016-2018):** Co-supervision of MSc students Marcelo Barraza (gas+dust hydro) and Felipe Alarcón (hydro+observations of vortices).

**U. de Chile (2016-2017):** Supervisor of undergraduate research projects: M. Araya (hydrodynamics of multiple planets), A. Dumas (radiation hydrodynamics) and M. Briceño (FU Ori ALMA observations).

**U. de Chile (2015-2016):** Supervisor of undergraduate research projects: C. Flores, M. Barraza and F. Alarcón.

**U. of Oxford (2007-2010):** Lecturer Stellar Evolution and Cosmology (Astro B3, 3rd year Physics undergrads).

**2002–2006 at U. de Chile:** Teaching assistant for Electromagnetism and Statistical Physics.

## Recent telescope time allocated as PI (2014–2019)

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**ALMA Cycle 6 rank A:** (long baselines) Follow up observation on circumplanetary disk discovery, 16h

**VLT/SPHERE DDT P101:** SAM observations of a candidate protoplanet, 5h

**ALMA Cycle 5 rank A:** (long baselines) Survey of TTauri disks (DARTTS-A). 10h

**SPHERE/VLT P101:** Solar asteroid belt analogue. 0.5n

**ALMA Cycle 4 rank A:** (long baselines) CPD detection. 11h

**ALMA Cycle 4 rank A:** (long baselines) Kinematics of FU Ori. 3h

**ALMA Cycle 4 rank B:** Protolunar disks II. 3h

**VLA A-config 2017:** V883 Ori's snowline. 6h

**SPHERE/VLT P98 and P99:** Interacting protoplanetary disks Survey II. 0.9n

**SPHERE/VLT P97:** Interacting protoplanetary disks Survey I. 0.3n

**ALMA Cycle 3 rank B:** Protolunar disks. 3h

**ALMA Cycle 2 rank B:** Planet formation at a critical age. 5h

**NACO/VLT P96:** Circumstellar environ of ZCMa in high contrast polarimetry. 4h

**NACO/VLT P96:** Ionised nebula around black hole SS433. 2h in service + 4h visitor AGPM

**MagAO/Baade 2014:** Twin disks SR24, diffraction-limited imaging in Z' and K band. 2h

## Invited colloquia (recent)

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| ◦ Department of Physics, U. de Santiago, Chile. | Jan 2019 |
| ◦ Department of Astronomy, U. de Chile.         | Dec 2018 |
| ◦ Institute of Astronomy, Cambridge, UK.        | Oct 2018 |
| ◦ Niels Bohr Institute, Copenhagen, Denmark.    | Oct 2018 |

## Conferences and workshops (selected)

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- Aspen Center for Physics, "Unveiling the Physics of Protoplanet Formation: Connecting Theory to Observations." July 2018
- Circumplanetary Disks and Satellite Formation (CPDSF), Nagoya, Japan. March 26-30, 2018  
**Contributed talk: "Circumplanetary Disk Detection via ALMA gas kinematics"**
- ESO Planet Formation 2016, ESO, Santiago.  
**Contributed talk: "Protoplanet detection and mass estimates via ALMA kinematics"**
- Disc Dynamics & Planets 2015, Larnaka, Cyprus.  
**Contributed talk: "Circumplanetary disc signposts in gas kinematics"**
- Transition Disks and Planet Formation 2015, Lorentz Workshop, Leiden, Netherlands.  
**Contributed talk: "Observability of circumplanetary discs via ALMA gas kinematics"**

- Protoplanetary disks and the planets they form 2014, MAD workshop, Calan, Chile  
Chair and coordinator for the “Modelling and Observability of Planet Formation” session
- Herbig Ae/Be stars: the missing link in star formation 2014, ESO Santiago, Chile  
Talk: “HD142527 transition disk”
- Characterising planetary systems across the HR diagram 2014, Cambridge, UK  
Transformational Science with ALMA 2013: From Dust to Rocks to Planets, Hawaii, USA  
Poster: “HD142527’s gap depth”
- ALMA Early Science conference 2012, Puerto Varas, Chile  
Talk: “ALMA Cycle 0 observations of gas in HD142527’s gap”

## Tools and technical expertise

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**Numerical Simulations:** 3D/2D hydrodynamic simulations (FARGO, FARGO2D-ADSG, FARGO3D, GADGET-2).

**Radiative Transfer:** Continuum and line emission calculations with RADMC3D. Listed as developer in RADMC3D website. Also have experience with MCFOST and LIME.

**Image synthesis:** NRAO CASA, GPU-UVMEM.

**Programming languages:** Python (astropy, numpy, scipy), Perl (PDL), C, CUDA GPU, OpenGL, Fortran.

## Recent outreach activity

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- Odessa House of Scientists, Astronomy society, Odessa, Ukraine. Oct 2018.
- Keynote speaker at “Simposio de Arte y Astronomía”, UDP, Santiago, Chile. Mar 2018
- Workshop talk on art and astronomy at UNESCO’s “Learning through Art” week. Coyhaique, Chile. 2016
- >50 outreach talks at schools since 2013, in Chile (50), UK (4), India (2), Ukraine (1) and South Africa (1).
- Invited to 7 radio shows at four major radio stations and four appearances on national TV (including S02E10 Hijos de las Estrellas, Metropolitros).
- Invited to several “Diálogos en movimiento” by Ministry of Cultures at schools in Chile.

## Other highlights

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- Observing experience on VLT/SPHERE, ALMA, Gemini North and South, 6m Magellan, VLA, SAAO 2m
- Advanced English and Native Spanish.

## Reference letters / People who are familiar with my work

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### Prof. Katherine M. Blundell

- Astrophysics, University of Oxford
- katherine.blundell@physics.ox.ac.uk

### Prof. Lucas Cieza

- Nucleo de Astronomia, U. Diego Portales
- lucas.cieza@mail.udp.cl

### Prof. Simon Casassus

- DAS, Universidad de Chile
- simon@das.uchile.cl

### Prof. Dame Jocelyn Bell-Burnell

- Astrophysics, University of Oxford
- Jocelyn.BellBurnell@physics.ox.ac.uk

## Publications list (WoS/ISI, peer-reviewed)

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[1] S. Casassus, S. Marino, W. Lyra, C. Baruteau, M. Vidal, A. Wootten, **Pérez, S.**, F. Alarcon, M. Barraza, M. Cárcamo, R. Dong, A. Sierra, Z. Zhu, L. Ricci, V. Christiaens, and L. Cieza. Cm-wavelength observations of MWC 758: resolved dust trapping in a vortex. *MNRAS*, 483:3278–3287, March 2019.

- [2] L. A. Cieza, D. Ruíz-Rodríguez, A. Hales, S. Casassus, **Pérez, S.**, C. Gonzalez-Ruilova, H. Cánovas, J. P. Williams, A. Zurlo, M. Ansdell, H. Avenhaus, A. Bayo, G. H.-M. Bertrang, V. Christiaens, W. Dent, G. Ferrero, R. Gamen, J. Olofsson, S. Orcajo, K. Peña Ramírez, D. Principe, M. R. Schreiber, and G. van der Plas. **The Ophiuchus Disc Survey Employing ALMA (ODISEA) - I: project description and continuum images at 28 au resolution.** *MNRAS*, 482:698–714, January 2019.
- [3] S. **Pérez**, S. Casassus, and P. Benítez-Llambay. **Observability of planet-disc interactions in CO kinematics.** *MNRAS*, 480:L12–L17, October 2018.
- [4] A. S. Hales, **Pérez, S.**, M. Saito, C. Pinte, L. Knee, I. de Gregorio-Monsalvo, C. López, A. Plunkett, P. Cortés, S. Corder, and L. Cieza. **The Circumstellar Disk and Asymmetric outflow of the EX Lup Outburst System.** *ArXiv e-prints*, April 2018.
- [5] S. Casassus, S. Marino, W. Lyra, M. Vidal, A. Wootten, C. Baruteau, **Pérez, S.**, F. Alarcon, M. Barraza, M. Carcamo, R. Dong, Z. Zhu, L. Ricci, V. Christiaens, and L. Cieza. **Cm-wavelength observations of MWC758: resolved dust trapping in a vortex and intra-cavity signal.** *ArXiv e-prints*, May 2018.
- [6] H. Avenhaus, S. P. Quanz, A. Garufi, **Pérez, S.**, S. Casassus, C. Pinte, G. H.-M. Bertrang, C. Caceres, M. Benisty, and C. Dominik. **Disks AROUND TTauri Stars with Sphere (DARTTS-S) I: Sphere / IRDIS Polarimetric Imaging of 8 prominent TTauri Disks.** *ArXiv e-prints*, March 2018.
- [7] S. Casassus, H. Avenhaus, **Pérez, S.**, V. Navarro, M. Cárcamo, S. Marino, L. Cieza, S. P. Quanz, F. Alarcón, A. Zurlo, A. Osses, F. R. Rannou, P. E. Román, and M. Barraza. **An inner warp in the DoAr 44 T Tauri transition disk.** *MNRAS*, April 2018.
- [8] D. J. Price, N. Cuello, C. Pinte, D. Mentiplay, S. Casassus, V. Christiaens, G. M. Kennedy, J. Cuadra, M. **Sebastian Pérez**, S. Marino, P. J. Armitage, A. Zurlo, A. Juhasz, E. Ragusa, G. Laibe, and G. Lodato. **Circumbinary, not transitional: on the spiral arms, cavity, shadows, fast radial flows, streamers, and horseshoe in the HD 142527 disc.** *MNRAS*, 477:1270–1284, June 2018.
- [9] G. H.-M. Bertrang, H. Avenhaus, S. Casassus, M. Montesinos, F. Kirchschlager, **Pérez, S.**, L. Cieza, and S. Wolf. **HD 169142 in the eyes of ZIMPOL/SPHERE.** *MNRAS*, 474:5105–5113, March 2018.
- [10] L. A. Cieza, D. Ruíz-Rodríguez, **Pérez, S.**, S. Casassus, J. P. Williams, A. Zurlo, D. A. Principe, A. Hales, J. L. Prieto, J. J. Tobin, Z. Zhu, and S. Marino. **The ALMA early science view of FUor/EXor objects - V. Continuum disc masses and sizes.** *MNRAS*, 474:4347–4357, March 2018.
- [11] D. A. Principe, L. Cieza, A. Hales, A. Zurlo, J. Williams, D. Ruíz-Rodríguez, H. Canovas, S. Casassus, K. Mužić, **Pérez, S.**, J. J. Tobin, and Z. Zhu. **The ALMA early science view of FUor/EXor objects - IV. Mis-aligned outflows in the complex star-forming environment of V1647 Ori and McNeil’s Nebula.** *MNRAS*, 473:879–895, January 2018.
- [12] L. A. Cieza, S. Casassus, **Pérez, S.**, A. Hales, M. Cárcamo, M. Ansdell, H. Avenhaus, A. Bayo, G. H.-M. Bertrang, H. Cánovas, V. Christiaens, W. Dent, G. Ferrero, R. Gamen, J. Olofsson, S. Orcajo, A. Osses, K. Peña-Ramirez, D. Principe, D. Ruíz-Rodríguez, M. R. Schreiber, G. van der Plas, J. P. Williams, and A. Zurlo. **ALMA Observations of Elias 2-24: A Protoplanetary Disk with Multiple Gaps in the Ophiuchus Molecular Cloud.** *ApJL*, 851:L23, December 2017.
- [13] T. Stolker, M. Sitko, B. Lazareff, M. Benisty, C. Dominik, R. Waters, M. Min, **Pérez, S.**, J. Milli, A. Garufi, J. de Boer, C. Ginski, S. Kraus, J.-P. Berger, and H. Avenhaus. **Variable Dynamics in the Inner Disk of HD 135344B Revealed with Multi-epoch Scattered Light Imaging.** *ApJ*, 849:143, November 2017.
- [14] D. Ruíz-Rodríguez, L. A. Cieza, J. P. Williams, J. J. Tobin, A. Hales, Z. Zhu, K. Mužić, D. Principe, H. Canovas, A. Zurlo, S. Casassus, S. **Pérez**, and J. L. Prieto. **The ALMA early science view of FUor/EXor objects - II. The very wide outflow driven by HBC 494.** *MNRAS*, 466:3519–3532, April 2017.



- [15] A. Zurlo, L. A. Cieza, J. P. Williams, H. Canovas, S. **Perez**, A. Hales, K. Mužić, D. A. Principe, D. Ruíz-Rodríguez, J. Tobin, Y. Zhang, Z. Zhu, S. Casassus, and J. L. Prieto. **The ALMA early science view of FUor/EXor objects - I. Through the looking-glass of V2775 Ori.** *MNRAS*, 465:834–842, February 2017.
- [16] L. Galbany, L. Mora, S. González-Gaitán, A. Bolatto, H. Dannerbauer, Á. R. López-Sánchez, K. Maeda, **Pérez, S.**, M. A. Pérez-Torres, S. F. Sánchez, T. Wong, C. Badenes, L. Blitz, R. A. Marino, D. Utomo, and G. Van de Ven. **Molecular gas in supernova local environments unveiled by EDGE.** *MNRAS*, 468:628–644, June 2017.
- [17] G. van der Plas, C. M. Wright, F. Ménard, S. Casassus, H. Canovas, C. Pinte, S. T. Maddison, K. Maaskant, H. Avenhaus, L. Cieza, S. **Perez**, and C. Ubach. **Cavity and other radial substructures in the disk around HD 97048.** *A&A*, 597:A32, January 2017.
- [18] S. Marino, L. Matrà, C. Stark, M. C. Wyatt, S. Casassus, G. Kennedy, D. Rodriguez, B. Zuckerman, S. **Perez**, W. R. F. Dent, M. Kuchner, A. M. Hughes, G. Schneider, A. Steele, A. Roberge, J. Donaldson, and E. Nesvold. **Exocometary gas in the HD 181327 debris ring.** *MNRAS*, 460:2933–2944, August 2016.
- [19] L. A. Cieza, S. Casassus, J. Tobin, S. P. Bos, J. P. Williams, S. **Perez**, Z. Zhu, C. Caceres, H. Canovas, M. M. Dunham, A. Hales, J. L. Prieto, D. A. Principe, M. R. Schreiber, D. Ruiz-Rodriguez, and A. Zurlo. **Imaging the water snow-line during a protostellar outburst.** *Nature*, 535:258–261, July 2016.
- [20] M. Montesinos, S. **Perez**, S. Casassus, S. Marino, J. Cuadra, and V. Christiaens. **Spiral Waves Triggered by Shadows in Transition Disks.** *ApJL*, 823:L8, May 2016.
- [21] S. Marino, S. Casassus, **Perez, S.**, W. Lyra, P. E. Roman, H. Avenhaus, C. M. Wright, and S. T. Maddison. **Compact Dust Concentration in the MWC 758 Protoplanetary Disk.** *ApJ*, 813:76, November 2015.
- [22] S. Casassus, S. Marino, **Pérez, S.**, P. Roman, A. Dunhill, P. J. Armitage, J. Cuadra, A. Wootten, G. van der Plas, L. Cieza, V. Moral, V. Christiaens, and M. Montesinos. **Accretion Kinematics through the Warped Transition Disk in HD142527 from Resolved CO(6–5) Observations.** *ApJ*, 811:92, October 2015.
- [23] **Perez, S.**, A. Dunhill, S. Casassus, P. Roman, J. Szulágyi, C. Flores, S. Marino, and M. Montesinos. **Planet Formation Signposts: Observability of Circumplanetary Disks via Gas Kinematics.** *ApJL*, 811:L5, September 2015.
- [24] M. Montesinos, J. Cuadra, **Perez, S.**, C. Baruteau, and S. Casassus. **Protoplanetary Disks Including Radiative Feedback from Accreting Planets.** *ApJ*, 806:253, June 2015.
- [25] H. Canovas, **Perez, S.**, C. Dougados, J. de Boer, F. Ménard, S. Casassus, M. R. Schreiber, L. A. Cieza, C. Caceres, and J. H. Girard. **The inner environment of Z Canis Majoris: High-contrast imaging polarimetry with NaCo.** *A&A*, 578:L1, June 2015.
- [26] S. Casassus, C. M. Wright, S. Marino, S. T. Maddison, A. Wootten, P. Roman, **Pérez, S.**, P. Pinilla, M. Wyatt, V. Moral, F. Ménard, V. Christiaens, L. Cieza, and G. van der Plas. **A Compact Concentration of Large Grains in the HD 142527 Protoplanetary Dust Trap.** *ApJ*, 812:126, October 2015.
- [27] S. Marino, **Perez, S.**, and S. Casassus. **Shadows Cast by a Warp in the HD 142527 Protoplanetary Disk.** *ApJL*, 798:L44, January 2015.
- [28] **Perez, S.**, S. Casassus, F. Ménard, P. Roman, G. van der Plas, L. Cieza, C. Pinte, V. Christiaens, and A. S. Hales. **CO Gas Inside the Protoplanetary Disk Cavity in HD 142527: Disk Structure from ALMA.** *ApJ*, 798:85, January 2015.

- [29] G. van der Plas, S. Casassus, F. Ménard, **Perez, S.**, W. F. Thi, C. Pinte, and V. Christiaens. **Spatially Resolved HCN J = 4-3 and CS J = 7-6 Emission from the Disk around HD 142527.** *ApJL*, 792:L25, September 2014.
- [30] A. S. Hales, I. De Gregorio-Monsalvo, B. Montesinos, S. Casassus, W. F. R. Dent, C. Dougados, C. Eiroa, A. M. Hughes, G. Garay, D. Mardones, F. Ménard, A. Palau, **Pérez, S.**, N. Phillips, J. M. Torrelles, and D. Wilner. **A CO Survey in Planet-forming Disks: Characterizing the Gas Content in the Epoch of Planet Formation.** *AJ*, 148:47, September 2014.
- [31] V. Christiaens, S. Casassus, **Perez, S.**, G. van der Plas, and F. Ménard. **Spiral Arms in the Disk of HD 142527 from CO Emission Lines with ALMA.** *ApJL*, 785:L12, April 2014.
- [32] S. Casassus, G. van der Plas, **Perez, S.**, W. R. F. Dent, E. Fomalont, J. Hagelberg, A. Hales, A. Jordán, D. Mawet, F. Ménard, A. Wootten, D. Wilner, A. M. Hughes, M. R. Schreiber, J. H. Girard, B. Ercolano, H. Canovas, P. E. Román, and V. Salinas. **Flows of gas through a protoplanetary gap.** *Nature*, 493:191–194, January 2013.
- [33] L. A. Cieza, S. Lacour, M. R. Schreiber, S. Casassus, A. Jordán, G. S. Mathews, H. Cánovas, F. Ménard, A. L. Kraus, **Pérez, S.**, P. Tuthill, and M. J. Ireland. **Sparse Aperture Masking Observations of the FL Cha Pre-transitional Disk.** *ApJL*, 762:L12, January 2013.
- [34] S. Casassus, **Perez M., S.**, A. Jordán, F. Ménard, J. Cuadra, M. R. Schreiber, A. S. Hales, and B. Ercolano. **The Dynamically Disrupted Gap in HD 142527.** *ApJL*, 754:L31, August 2012.
- [35] **Perez M., S.** and K. M. Blundell. **SS433’s circumbinary ring and accretion disc viewed through its attenuating disc wind.** *MNRAS*, 408:2–8, October 2010.
- [36] **Perez, S.**, S. Casassus, J. R. Cortés, and J. D. P. Kenney. **Near-infrared imaging and spectroscopy of the nuclear region of the disturbed Virgo cluster spiral NGC4438.** *MNRAS*, 400:2098–2110, December 2009.
- [37] **Perez M., S.** and K. M. Blundell. **Inflow and outflow from the accretion disc of the microquasar SS433: UKIRT spectroscopy.** *MNRAS*, 397:849–856, August 2009.
- [38] F. J. Clarke, A. J. Gosling, S. Doolin, P. Goodall, **Perez, S.**, P. Pattinson, R. Makin, and K. M. Blundell. **The GlobalJetWatch spectrographs: a fibre-fed spectrograph for small telescopes.** In *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 7014 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, page 5, July 2008.