

Contact Information

Mailing Address: Department of Physics and Astronomy
California State University, Northridge
18111 Nordhoff St, Northridge CA, 91330 USA
Telephone: +1 (818) 677-7464
E-mail: wlyra/csun.edu, wlyra/jpl.nasa.gov

Education

Uppsala University, Sweden	Astronomy	Ph.D. 2009
Uppsala University, Sweden	Astronomy	Ph.Lic. (M.Sc. equiv) 2007
Federal University of Rio de Janeiro, Brazil	Astronomy	B.Sc. 2003

Relevant Employment

Aug 2015 –	Assistant Professor	California State University, Northridge, CA
Dec 2011 – Jan 2015	NASA Carl Sagan fellow	NASA/JPL-Caltech, Pasadena CA
Nov 2009 – Dec 2011	Postdoctoral researcher	AMNH, New York NY
Apr 2009 – Oct 2009	Research assistant	MPIA, Heidelberg, Germany
Oct 2004 – Mar 2009	Graduate researcher	Uppsala University, Sweden
Jul 2003 – Jul 2004	Research assistant	CTIO, La Serena, Chile
Jun 2002 – Aug 2002	Summer research intern	STScI, Baltimore MD
Apr 2000 – Jul 2003	Undergraduate researcher	UFRJ, Rio de Janeiro, Brazil

Research Interests

Accretion disks, exoplanets, planet formation, planet migration, fluid mechanics, magnetohydrodynamics, dust dynamics; star formation, young stellar objects, stellar atmospheres, radiative transfer; code development, supercomputing. Icy moons, habitability.

Grants, Honors, and Awards

Major grants as PI

NASA Exoplanet Research Program	NASA-XRP (\$ 250k)	2016
Space Telescope Science Institute	Hubble Cycle 24 (\$ 134k)	2016
National Science Foundation	NSF-AAG (\$ 461k)	2010

Computer allocations

XSEDE	800k CPU hours (equiv \$ 30k)	2016
Teragrid	600k CPU hours (equiv \$ 22k)	2013

Honor & awards

Japanese Society for the Progress of Science	Visiting fellow	2015-2016
NASA Exoplanet Science Institute	Sagan Fellowship (\$ 309k)	2011-2014
USA government	O1 visa: alien of extraordinary ability	2014-2015

Other grants as PI

California State University	Probationary Faculty Support Program (\$5k)	2016
American Museum of Natural History	Kalbfleisch postdoctoral fellowship	2009-2010
European Science Foundation	Grant for Pencil Code meeting (€5k)	2009
German Science Foundation (DFG)	Grant for Pencil Code meeting (€5k)	2009
Uppsala University	Håkansson foundation (10k SEK)	2008
	Liljwalchs foundation (10k SEK)	2007
	Anna & Allan Löfbergs fellowship	2004-2006
Brazilian Research Council	Undergraduate research grant	2000-2003

Teaching Experience

- CSUN
 - ASTR 601 Selected Topics in Astrophysics. Fall 2015, Fall 2017.
 - ASTR 401 Radiative Processes in Astrophysics. Spring 2016, Spring 2017.
 - PHYS 389 Mathematical Methods in Physics I. Fall 2016.
- American Museum of Natural History: Teacher on the Museum's After-School program, for courses *Stars - An introduction to Stellar Astrophysics* (2010) and *Secrets of the Solar System* (2011).
- Uppsala University: Teaching Assistantship for the following courses: Physics of the interstellar medium (2007), Stellar Physics (2007), Classical Mechanics (2008).
- Federal University of Rio de Janeiro: Tutoring for Astronomy Students in Statistics (2001), Electromagnetism (2002), Quantum Mechanics (2003).
- Guest lecturer in undergraduate courses: *Astrophysics* at University of Ottawa (Nov 2012), *Minor bodies of the solar system* and *Stellar Physics* at University of Uppsala (May 2006 and Sep 2008, respectively).

Experience as Supervisor

As faculty:

- Postdocs: Natalia Dzyurkevich, Luca Ricci.
- Ph.D. students (co-advisor): Alexander Richert (Penn State University), Debanjan Segupta (University of Delaware).
- M.Sc. students: Alexandra Yep, Amanda Rowen, Vincent Carpenter, Leonardo Sattler-Cassara, Areli Castrejon.
- Undergraduates: Sean Snyder, Carlos Chichiri, Areli Castrejon, Joshua Shevchuk, John Rincon, Christopher Malek, Andrew Clapper, Gabriel Bretado.
- Summer high-school interns: Blake Hord.

Mentoring while a postdoc at Caltech-JPL:

- Ph.D. students: Alexander Richert.

- Undergraduate interns: Leonardo Sattler-Cassara (2014); Joseph Cullen, Adam Ball (2013).

Works co-advised while a postdoc at AMNH:

- Global Baroclinic Instability and its Implications for Planet Formation. Raettig, N. 2012. Ph.D. Thesis.
- Orbital migration of interacting low-mass planets in evolutionary radiative turbulent models. Horn, R.B. 2012. First year graduate school project.

B.Sc. theses co-advised while a graduate student at Uppsala University:

- Radiative transfer in hydrodynamical models of protoplanetary disks. Thrastarson, H. Th. 2007. Thrastarson continued on to a Ph.D. in astronomy at Queen Mary University of London, and is currently a postdoc at NASA/JPL-Caltech.
- Feasibility study of observing planetary perturbations in protoplanetary disks using MIDI at VLTI. Schmidt, P. 2006. Schmidt continued on to a PhD in geology at Uppsala University.
- Photometric properties of metal-poor stars. A. Eriksson & Önehag, A. 2006. Önehag completed her Ph.D. in astronomy at the University of Uppsala.

Observational Experience

- Cerro Tololo Interamerican Observatory. Seventeen engineering nights at the 4m telescope scattered from oct/03 to jun/04 doing photometric observations of standard stars on JHK wavebands, to test Tololo's new infrared camera, ISPI. Observations were performed under supervision of CTIO staff Dr. Nicole S. van der Blik and Dr. Dara Norman.
- Observatório do Pico dos Dias, Laboratório Nacional de Astrofísica, Brazil. Extensive experience using the 1.60m telescope at OPD/LNA, performing spectroscopic observations in optical wavelengths with a coude spectrograph. The dates when the observations took place were may/00, oct/00, jun/01, sep/01, oct/01, may/02, oct/02, dec/02.

Synergistic Activities

- **Conference organizer:**
 - SOC of Numerical Simulations of Planet-Disk Interactions, Cuernavaca, Mexico, 2017.
 - SOC of Exoplanets in Southern California (ExSoCal) 2017.
 - Co-chair of Phase Transitions in Astrophysics, Nordita, Stockholm, Sweden, 2017.
 - SOC of Exoplanets in Southern California (ExSoCal) 2016.
 - Co-organizer of Pencil Code Meeting 2010, New York, NY, USA.
 - Organizer of Pencil Code Meeting 2009, Heidelberg, Germany.
 - Organizer of Workshop "Turbulence-Assisted Planetary Growth", 2009, Uppsala, Sweden.
 - Member of LOC of Nobel Symposium 135: Physics of Planetary Systems, 2007, Stockholm, Sweden.
- **Computation:** Co-developer (since 2005) of the Pencil Code, a high-order finite-difference parallel code for MHD turbulence.
- **Panels:** Review panel member for NSF and NASA. External reviewer.
- **Journal reviewer:** Referee for Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society, Astrophysical Journal, Planetary and Space Sciences.

Other skills

Programming proficiency: Fortran 90, IDL, Python, HTML (fluent); C, Awk, Linux/C-shell, IRAF (good). Operating systems: GNU/Linux, Mac OS X.

Language Proficiency: Portuguese (native speaker); English, Spanish (fluent); Swedish, French (conversational); German, Italian, Danish, Norwegian (reading).

Publication List

Summary: **38 refereed publications**, 24 as first or second author (15 first author, 9 second author). Cited over 1400 times. h-index: 23.

Articles currently in review

42. Implications of Tidally Driven Convection and Lithospheric Arguments on the Topography of Europa
Sattler-Cassara, L. & **Lyra, W.** 2017, *Icarus*, submitted.
41. Explaining transition disks with accretionally dead zones
Sandor, Zs., **Lyra, W.**, & Regaly, Zs. 2017, *A&A*, submitted.
40. The interplay between radiation pressure and the photoelectric instability in optically thin disks of gas and dust
Richert, A., **Lyra, W.**, & Kuchner, M. 2017, *ApJ*, submitted.
39. On stellar-mass black hole mergers in AGN disks detectable with LIGO
McKernan, B., Ford, K. E. S., Bellovary, J., Leigh, N.W.C., Haiman, Z., Kocsis, B., **Lyra, W.**, MacLow, M.-M., Metzger, B., O'Dowd, M., Endlich, S., Rosen, D.J. 2017, *MNRAS*, submitted.

Articles in press

38. On the rate of black hole mergers in galactic nuclei and active galactic nucleus disks II. Dynamical hardening
Leigh, N.W.C, Geller, A.M., McKernan, B., Ford, K.E.S., Bellovary, J., Endlich, S., Haiman, Z., Kocsis, B., **Lyra, W.**, Mac Low, M.-M., Metzger, B., O'Dowd, M., Samsing, J., & Stone, N.C. 2017, *MNRAS*, accepted.
37. Radiation hydrodynamical turbulence in protoplanetary disks: Numerical models and observational constraints
Flock, M., Nelson, R., Turner, N., Bertrang, G., Carrasco-Gonzalez, C., Henning, Th., **Lyra, W.**, & Teague, R. 2017, *ApJ*, accepted.

Published refereed articles

36. On shocks driven by high-mass planets in radiatively inefficient disks. III. Observational signatures in thermal emission and scattered light
Hord, B., **Lyra, W.**, Turner, N., Flock, M., & Mac Low, M.-M. 2017, *ApJ*, 849, 164.
35. Low mass planet migration in magnetically torqued dead zones I: Static migration torque
McNally, C.P., Nelson, R. P., Paardekooper, S.-J., Gressel, O., & **Lyra, W.** 2017, *MNRAS*, 472, 1565.
34. Orbital advection with magnetohydrodynamics and vector potential
Lyra, W., McNally, C.P., Heinemman, T., & Masset, F. 2017, *AJ*, 154, 146.
33. Grand challenges in protoplanetary disc modelling.
Haworth, T.J, Ilee, J. D., Forgan, D. H. , Facchini, S., Price D. J.; Community authors: Boneberg, D. M. , Booth, R. A., Clarke, C. J., Gonzalez, J.-F., Hutchison, M. A., Kamp, I., Laibe, G., **Lyra, W.**, Meru, F., Mohanty S., Panic, O., Rice, K., Suzuki, T., Teague, R., Walsh, C., Woitke, P. 2016, *PASA*, accepted.

32. On shocks driven by high-mass planets in radiatively inefficient disks. II. Three-dimensional global disk simulations.
Lyra, W., Richert, A.J.W., Boley, A., Turner, N., Mac Low, M.-M., Okuzumi, S., & Flock, M. 2016, *ApJ*, 817, 102.
31. Compact dust concentration in the MWC 758 protoplanetary disk
 Marino, S., Casassus, S., Perez, S., **Lyra, W.**, Roman, P.E., Avenhaus, H., Wright, C.M., & Mad-dison, S.T. 2015, *ApJ*, 813, 76.
30. On shocks driven by high-mass planets in radiatively inefficient disks. I. Two-dimensional global disk simulations.
 Richert, A.J.W., **Lyra, W.**, Boley, A.C., Mac Low, M.-M. & Turner, N. 2015, *ApJ*, 804, 95.
29. Particle trapping and streaming instability in vortices in protoplanetary disks.
 Raettig, N., Klahr H., & **Lyra, W.** 2015, *ApJ*, 804, 35.
28. CSI 2264: Characterizing Young Stars in NGC 2264 with Short-Duration, Periodic Flux Dips in their Light Curves
 Stauffer, J., Cody, A.-M., McGinnis, P., Rebull, L., Hillenbrand, L.A., Turner, N.J., Carpenter, J., Plavchan, P., Carey, S., Terebey, S., Calderon, M. M., Alencar, S.H.P, Bouvier, J., Venuti, L., Hartmann, L., Calvet, N., Micela, G., Flaccomio, E., Song, I., Gutermuth, R., Barrado, B., Vrba, F.J., Covey, K., Padgett, D., Herbst, W., Gillen, E., **Lyra, W.**, Guimaraes, M. M., Bouy, H., & Favata, F. 2015, *AJ*, 149, 130.
27. Rossby wave instability does not require sharp resistivity gradients.
Lyra, W., Turner, N.J., McNally, C.P. 2015, *A&A*, 574, A10.
26. Convective overstability in accretion disks: 3D Linear analysis and nonlinear saturation.
Lyra, W. 2014, *ApJ*, 789, 77.
25. Intermediate mass black holes in AGN disks II. Model predictions and observational constraints.
 McKernan, B., Ford, K.E.S., Kocsis, B. **Lyra, W.**, Perets H.B., & Winter, L.M. 2014, *Monthly Notices of The Royal Astronomical Society (MNRAS)*, 441, 900.
24. Steady state of dust distributions in disk vortices: Observational predictions and applications to transitional disks.
Lyra, W. & Lin, M.-K. 2013, *ApJ*, 775, 17
23. Formation of sharp eccentric rings in debris disks with gas but without planets.
Lyra, W. & Kuchner, M.J. 2013, *Nature*, 499, 184
22. A parameter study for baroclinic disk instability.
 Raettig, N., **Lyra, W.**, & Klahr, H. 2012, *ApJ*, 765, 115
21. Rossby wave instability at dead zone boundaries in 3D resistive magnetohydrodynamical models of protoplanetary disks.
Lyra, W. & Mac Low, M.-M. 2012, *ApJ*, 756, 62
20. Intermediate mass black holes in AGN disks I. Production & growth.
 McKernan, B., Ford, K.E.S. **Lyra, W.**, & Perets, H. B. 2012, *MNRAS*, 425, 460.
19. A well-posed Kelvin-Helmholtz instability test and comparison.
 McNally, M. **Lyra, W.**, & Passy, J.-C. 2012, *ApJ Suppl*, 201, 18.

18. On the connection between the magneto-rotational and magneto-elliptic instabilities.
Mizerski, K.A. & **Lyra, W.** 2012, *Journal of Fluid Mechanics*, 698, 358.
17. Orbital migration of interacting low-mass planets in evolutionary radiative turbulent models.
Horn, R. B., **Lyra, W.**, Mac Low, M.-M., & Sándor, Zs. 2012, *ApJ*, 750, 34.
16. On rapid migration and accretion within disks around supermassive black holes.
McKernan, B., Ford, K.E.S., **Lyra, W.**, Perets, H.B., Winter, & L.M., Yaqoob, T. 2011, *MNRAS*, 417L, 103.
15. Meridional circulation in turbulent protoplanetary disks.
Fromang, S., **Lyra, W.**, & Masset, F. 2011, *Astronomy & Astrophysics (A&A)*, 534, 107
14. Formation of planetary cores at Type I migration traps.
Sandor, Zs., **Lyra, W.**, & Dullemond, C. 2011, *ApJ*, 728L, 9
13. The baroclinic instability in the context of layered accretion. Self-sustained vortices and their magnetic stability in local compressible unstratified models of protoplanetary disks.
Lyra, W. & Klahr, H. 2011, *A&A*, 527, 138
12. Orbital migration of low-mass planets in evolutionary radiative models: Avoiding catastrophic infall.
Lyra, W., Paardekooper, S.-J., & Mac Low, M.-M. 2010, *ApJ*, 715, L68
11. Planet formation bursts at the borders of the dead zone in 2D numerical simulations of circumstellar disks.
Lyra, W., Johansen, A., Klahr, H. & Piskunov, N. 2009 *A&A*, 497, 869
10. Turbulent stresses as a function of shear rate in a local disk model.
Liljeström, A. J., Korpi, M. J., Käpylä, P. J., Brandenburg, A. & **Lyra, W.** 2009, *Astronomische Nachrichten*, 330, 92
9. Standing on the shoulders of giants: Trojan Earths and vortex trapping in low-mass self-gravitating protoplanetary disks of gas and solids.
Lyra, W., Johansen, A., Klahr, H. & Piskunov, N. 2009, *A&A*, 493, 1125. *A&A* cover.
8. Embryos grown in the dead zone: Assembling the first protoplanetary cores in low-mass self-gravitating circumstellar disks of gas and solids.
Lyra, W., Johansen, A., Klahr, H., & Piskunov, N. 2008, *A&A*, 491, L41. *A&A* highlight.
7. The Alpha-Centauri binary system: Atmospheric parameters and element abundances.
Porto de Mello, G.F. **Lyra, W.**, & Keller, G.R.R. 2008, *A&A*, 488, 653
6. Global magnetohydrodynamical models of turbulence in protoplanetary disks.
I. A cylindrical potential on a Cartesian grid and transport of solids.
Lyra, W., Johansen, A., Klahr, H. & Piskunov, N. 2008, *A&A*, 479, 883.
5. Spiral structure of the Third Galactic Quadrant and the solution to the Canis Majoris debate.
Moitinho, A., Vázquez, R. A., Carraro, G., Baume, G., Giorgi, E.E., & **Lyra, W.** 2006, *MNRAS*, 368, 77.
4. A comparative study of disc-planet interaction.
de Val-Borro, M., Edgar, R., Artymowicz, P., Cieliegi, P., Cresswell, P., D'Angelo, G., Delgado-Donate, E., Dirksen, R.G., Fromang, S., Gawryszczak, A., Klahr, H., Kley, W., **Lyra, W.**, Masset,

F., Mellema, G., Nelson, R., Paardekooper, S.-J., Peplinski, A., Pierens, A., Plewa, T., Rice, K., Schäfer, C., Speith, R. 2006, MNRAS, 370, 529

3. On the difference between nuclear and contraction ages.

Lyra, W., Moitinho, A., van der Blik, N. S., Alves, J. 2006 A&A, 453, 101.

2. A link between stellar metallicity and the semi-major axis of extrasolar planets.

Pinotti, R., Arany-Prado, L.I., **Lyra, W.** & Porto de Mello, G.F. 2005, MNRAS, 364, 29.

1. Fine structure of the chromospheric activity in Solar-type stars: The H α line.

Lyra, W. & Porto de Mello, G.F. 2005, A&A, 431, 329.

Oral Communications

Invited talks and reviews

- “The Europa Clipper mission” (for amateurs)’ Invited talk at *AstroCon 17*, Casper WY, Aug 18th, 2017.
- “Hydrodynamical instabilities in the Ohmic dead zone in circumstellar disks and dwarf novae.” Invited talk at *Confronting MHD Theories of Accretion Disks with Observations*, Kavli Institute for Theoretical Physics, Santa Barbara CA, Feb 28, 2017.
- “How shocks driven by high-mass planets can explain the spirals seen in transition disks.” Invited talk at *Exoplanets and Disks: Their formation and diversity*, Ishigaki, Okinawa, Japan, Feb 21-24, 2016.
- “How shocks driven by high-mass planets can explain the spirals seen in transition disks.”, Invited talk at *Protoplanetary Disk Dynamics and Planet Formation*, JAMSTEC, Tokyo, Japan, Sep 29-Oct 2, 2015.
- “Gas dynamics in circumstellar disks: planet signatures and dynamical instabilities.”, Invited review at *3rd DTA Symposium - The origins of planetary systems: from the current view to new horizons*, NAOJ, Tokyo, Japan, Jun 1-4, 2015.
- “Rossby wave instability in MHD: inner and outer MRI-active/dead zone boundaries.” Invited talk at *The Magneto-Rotational Instability confronts the observations*, Ringberg Castle, Bavaria, Germany, Apr 13-17, 2015.
- “Non-axisymmetric structures in transition disks: dynamical instabilities without planets?”, Invited talk at *Transition Disks and Planet Formation*, Leiden, The Netherlands, Mar 2-6, 2015.
- “Gas in debris disks: a new way to produce patterns?”, invited talk at *Thirty years of beta Pic and debris disk studies*, Paris, France, Sep 8-12, 2014.
- “Gas in debris disks: a new way to produce patterns?”, invited talk at *2012 Sagan/Michelson Fellows Symposium*, Pasadena, Nov 8-9, 2012.
- “Elliptic and magneto-elliptic instabilities”, invited review at meeting *Instabilities and structures in protoplanetary disks*, Marseilles, France, 17-20 September, 2012.
- “Dynamics of the turbulent solar nebula”, invited review at workshop *Dynamics and formation of the Oort Cloud*, Lille Observatory, Lille, France, 27-30 September 2011.
- “The baroclinic instability in protoplanetary disks”, invited talk at *Ringberg workshop on Geophysical and Astrophysical fluid flow: Baroclinic instability and protoplanetary accretion disks*, Ringberg Castle, Bavaria, Germany, 14-18 June 2011.
- “The dramatic role of magnetic fields in the Solar Nebula”, invited review at workshop *Energy transfer and conversion inside magnetospheres*, Uppsala, Sweden, May 23 2008.

Contributed talks

- Comet formation paradigm after Rosetta. Sofia, Bulgaria, Jun 19-23, 2017.
- XV Latin American Regional IAU Meeting (LARIM), Cartagena de Indias, Colombia, Oct 3-7, 2016.
- Pencil code user meeting 2016, Space Research Institute, Austrian Academy of Sciences, Graz, Austria, Aug 8-12, 2016.
- Protoplanetary Discussions, Edinburgh, Scotland, UK, Mar 7-11, 2016 (cancelled participation).
- ExSoCal2015 - An exoplanet orbital interaction, Caltech, Pasadena CA, Sept 24-25, 2015.
- Disk dynamics and planet formation, Larnaka, Cyprus, Jun 29 - Jul 3, 2015 (cancelled participation).
- Pencil code user meeting 2014, Max Planck Institute for Solar System Research, Göttingen, Germany, Jul 7-11, 2014.
- Bay Area Exoplanet Meeting #9, SETI Institute, Mountain View, CA, Jun 6, 2014.
- Exoplanets and disks: their formation and diversity II, Kona, Hawaii, Dec 8-12, 2013.
- Pencil code user meeting 2013, Lund, Sweden, June 17-20, 2013.
- Formation, detection, and characterization of extrasolar planets habitable planets, Beijing, China, Aug 27-31, 2012.
- The origin of stars and their planetary systems, Hamilton, Canada, June 10-15, 2012, Annual meeting of the Canadian Astronomical Society, Calgary, Canada, June 05-07, 2012.
- Pencil code user meeting 2011, Toulouse, France, Oct 24-28, 2011.
- EPSC-DPS joint meeting 2011. Exoplanet and origins, Nantes, France, Oct 02-07, 2011.
- Annual meeting of the Astronomical Society of New York, Rochester, NY, Apr 09, 2011.
- Planet formation and evolution, Göttingen, Germany, Feb 14-16, 2011.
- The Astrophysics of Planetary Systems: Formation, Structure, and Dynamical Evolution, Torino, Italy, Oct 11-15, 2010.
- Pencil code user meeting 2010, New York, NY, Jul 26-30, 2010.
- Pencil code user meeting 2009, Heidelberg, Germany, Aug 24-28, 2009.
- Extrasolar planets in multibody systems, Toruń, Poland, Aug 25-29, 2008.
- Turbulence and oscillations in accretion disks, Stockholm, Sweden, Oct 1-15, 2008.
- Pencil code user meeting 2008, Leiden, The Netherlands, Aug 19-22, 2008.
- Pencil code user meeting 2007, Stockholm, Sweden, Aug 14-17, 2007.
- 9th MHD days, 2006, Heidelberg, Germany, Dec 4-5, 2006.
- Pencil code user meeting 2006, Copenhagen, Denmark, July 13-15, 2006.

Invited seminars and colloquia

- Pennsylvania State University, Sep 2017.
- Observatorio Nacional, Rio de Janeiro, Brazil, Aug 2017.
- ASIAA, TIARA seminar, Taipei, Taiwan, July 2017.
- Academia Sinica Institute for Astronomy and Astrophysics (ASIAA); colloquium, Taipei, Taiwan, July 2017.
- Eotvos Lornd University, Budapest, Hungary, Jun 2017.
- Uppsala University, May 2017.
- University of California at San Diego, Apr 2017.
- University of Hawaii, Apr 2017.
- University of Delaware, Apr 2017, seminar.
- University of Delaware, Apr 2017, colloquium.
- Observatorio Caln, Santiago, Chile, Jan 2017.
- Pontificia Universidad Catlica, Santiago, Chile, Jan 2017.
- University of California at Santa Cruz, Nov 2016.
- San Francisco State University, Oct 2016.
- MPIA, PSF Coffee, Heidelberg, Germany, Jun 2016.
- Planetary Sciences Colloquium, Caltech, Apr 2016.
- Nagoya University, Seminar, Nagoya, Japan, Dec 2015.
- Yuk Lunch, Caltech, Nov 2015.
- California State University, Fullerton, Oct 2015.
- NAOJ, Tokyo, Japan, seminar, Jun 2015.
- UFRJ, Rio de Janeiro, Brazil, seminar, May 2015.
- JPL Science Visitor and Colloquium Program, Pasadena CA, May 2015.
- Princeton University, Princeton NJ, May 2015.
- NASA Goddard Space Flight Center, Greenbelt MD, May 2015.
- University of Amsterdam, Amsterdam, the Netherlands, Mar 2015.
- Leiden Observatory, Leiden, the Netherlands, Mar 2015.
- California State University, Northridge, Feb 2015.
- Western Washington University, Bellingham WA, Geology Colloquium, Jan 2015.

- Western Washington University, Bellingham WA, Physics Colloquium, Jan 2015.
- Konkoly Observatory, Budapest, Hungary Nov 2014
- UC Santa Barbara, AstroSeminar, Nov 2014
- McGill University, Montreal, Special AstroSeminar, Sep 2014
- UCLA, Institute for Planets and Exoplanets lunch seminar, May 2014
- University of California at Berkeley, Seminar, Berkeley CA, Apr 2014
- Nagoya University, Seminar, Nagoya, Japan, Mar 2014
- Nordic Institute for Theoretical Physics, Seminar, Stockholm, Sweden, Nov 2013
- JPL Exoplanet Science Seminar, Pasadena CA, Oct 2013
- Lund University, Seminar, Lund, Sweden, Jun 2013
- Carleton University, Physics colloquium series, Ottawa ON, Canada, Oct 2012
- Université de Montréal, Seminar, Montréal QC, Canada, Sep 2012
- Queen's University, Seminar, Kingston ON, Canada, Sep 2012
- Caltech Infrared Processing and Analysis Center, Lunch seminar, Pasadena CA, Apr 2012
- Cornell University, Seminar, Ithaca, NY, Feb 2011
- NASA Goddard Space Flight Center, Seminar, Greenbelt MD, Dec 2010
- Institute for Advanced Studies, Astro-coffee discussion, Princeton NJ, Dec 2010
- American Museum of Natural History, Seminar day, New York NY, Nov 2009
- Lund University, Seminar, Lund, Sweden, Mar 2009

Outreach

Below I list the popular science articles and press releases that I wrote or were written about my work, plus interviews. Also, I am very interested in the power of education in promoting social change. Because of it, a cause I embrace is science outreach in low-income communities. I have been a collaborator of the initiative *Mars Academy* (now *Ad Astra Academy*). We did a pilot project in a favela in Rio de Janeiro, Brazil. Link to the project: <http://www.adastra.world/>, and promotional video: <https://vimeo.com/165655662>.

- Interview for Cosmic Perspective Radio at AstroCon17.
- Talk at AstroCon17 and story on LA Daily News
- Talk at de Toledo High School in Reseda, CA.
- Panel about time travel at the West Valley Branch of the LA public library in celebration of the 150th anniversary of H.G. Well's birth.
- *CSUN Today* (Feb 2016 and Jul 2015), CSUN's local newsletter, stories on my group and our research.
- Interview for *Globo*, a major Brazilian news channel, (in Portuguese), Jan 2016.
- Interview and Q&A session for NICS XSEDE's podcast series. Write-up and formatting by Scott Gibson, Dec 2015.
- Write-ups on *Mars Academy*, our outreach program in the favelas of Rio de Janeiro. *Jornal do Brasil* (in Portuguese), Nov 2015.
- Interview for National Geographic TV show *Strange Truths*, episode on asteroid and cometary impacts, Nov 2015.
- Live hangout for *Science and Astronomy's* podcast show, Oct 2015, about working at NASA (in Portuguese).
- Interview for *Globo News*, a major Brazilian news channel, about the discovery of running liquid water on Mars (in Portuguese), Sept 2015.
- Commentary on the anniversary of Relativity (in Portuguese), Jul 2015.
- Live hangout for *Science and Astronomy's* podcast show, June 2015, (in Portuguese).
- Write-up on the interview by *Science in Movement*, June 2015 (in Portuguese).
- Live interview for *Science in Movement* show in TV Rede Petropolis, Brazil, June 2015 (in Portuguese).
- Live interview for *Science and Astronomy's* hangout podcast show, May 2015, (in Portuguese).
- Op-ed *Reach for the stars: Favela children to control NASA Mars mission*, for the Toronto-based independent news website "The Mark News", Apr 2015.
- Q&A session for *Galileu*, a major monthly popular science publication in Brazil, Mar 2015 (in Portuguese).

- Write-up on the interview by *Science in Movement*, Mar 2015 (in Portuguese).
- Live interview for *Science in Movement* show in *TV Rede Petrópolis*, Brazil, Mar 2015 (in Portuguese).
- News story in the *Wired*, about our outreach project *Mars Academy*, aiming at bringing Mars science with NASA technology to kids from low income families in the slums of Rio de Janeiro. Mar 2015. The story got picked up by:
 - *Veja*, a leading Brazilian weekly newsletter (in Portuguese).
 - *Le Figaro*, leading French newspaper (in French).
 - *O Globo*, a leading Rio newspaper (in Portuguese).
- Op-ed *Well, you say you listen to stars: Astronomy and Brazil joining ESO*, on the occasion of the Brazilian Lower House voting on the project, Mar 2015 (in Portuguese).
- Initiative *Mars Academy* for science outreach in the favelas of Rio de Janeiro, Feb 2015.
- Post by LiHS, the Secular Humanist League of Brazil, on Brazil joining ESO, with commentary from me, Feb 2015.
- Commentary on HL Tauri. *Popular Astronomy*, Nov 2014 (in Swedish).
- Interview for the astronomy podcasting series at McGill university, Oct 2014.
- *Por que Marte não cresceu? (Why didn't Mars grow bigger?)*, in Portuguese). Consulting in media science article, Igor Zolnerkevic. Jul 2014.
- *Discover* magazine's very interesting story on the current debate on exoplanet naming. Quotes from Alan Stern, Bill Borucki, Thierry Montmerle, Eva Plavalova, and myself. Jul 2014.
- Interview for podcasting show *Stuttering is Cool*, Aug 2013.
- Proposed exoplanets may be just gas and dust *Nature press release*, Sid Perkins, Jul 2013.
- News story on *Folha de São Paulo* about the Nature paper, Salvador Nogueira, (in Portuguese), Jul 2013.
- Ring around the dust disk *Sky & Telescope*, Shari Balouchi, Jul 2013
- Exoplanets in doubt after gaps found in theory ABC Science, Australia, Stuart Gary, Jul 2013
- Evidence of alien planets? No, It's just gas. Space.com, Nola Redd, Jul 2013
- Gas, not planets, may be source of rings around stars Science News, Jessica Shugart, Jul 2013
- Public talk, BIL conference, Long Beach CA, Apr 2013.
- *O céu como bandeira* (The sky for flag, in Portuguese).
- Using 18 000 processors to stir the digital pot. Exoplanet Exploration Newsletter, Jan 2013.
- Live radio interview for the Southern California Science Radio, at invitation from the *Planetary Society*, in celebration of Carl Sagan's birthday (Nov 2012).
- Black holes might form like planets. *Sky & Telescope*, Stephen Craft, 2012.

- Dust rings not smoking gun for planets after all. *New Scientist*, Maggie McKee, May 2012.
- *Por que Urano gira de lado?* (Why does Uranus spin in its side?, in Portuguese), Igor Zolnerkevic. Consulting on media science article, 2011.
- *Na rota segura* (In Portuguese), Revista Pesquisa FAPESP, Marcos Pivetta. English translation: On a safe course, 2010.
- *Planètes: On sait pourquoi elles survivent à leur étoiles* (In French). Science et Vie, Roman Ikonicoff, 2010.
- Interview for secularist blog *Bule Voador* (Flying Teapot, in Portuguese). Interview conducted by Eli Vieira, 2010.
- Simulations justify Earth's existence. *Sky & Telescope*, Ivan Semeniuk, 2010.
- Why the Sun Never Swallowed the Earth. *Time* magazine, Michael Lemonick, 2010.
- How Earth survived a fiery premature death. Slashdot, 2010.
- How Earth survived its birth. Science Daily, original press-release by Kristen Phillips, 2010.
- *Por que não nomear os exoplanetas?* Jornal do Brasil, Nov 2009 (in Portuguese).
- Interview and report on *Fysikaktuellt* (in Swedish). Interview conducted by Ingela Roos, 2009.
- *Uppsalaforskare löser rymdmysterium* (In English and Swedish). Interview on the Swedish radio Vetenskapsradion, 2009.
- *Planeternas turbulenta födelse* (In Swedish), press-release of Ph.D. thesis on forskning.se, 2009.
- Gas giants may be followed by Earth-like planets (In Danish, Swedish, and Norwegian). *Illustreret Videnskab - Illustrerad Vetenskap - Illustrert Vitenskap* (Science Illustrated), 2008.
- Habitable worlds may hide in gas giants' wake. *New Scientist*, David Shiga, 2008.

References

- Dr. Nikolai Piskunov (piskunov@astro.uu.se, +46 18 471-5958).
Professor at Uppsala University.
Ph.D. advisor, 2004-2009.
- Dr. Neal Turner (Neal.J.Turner@jpl.nasa.gov, +1 818-393-0049).
Jet Propulsion Laboratory - California Institute of Technology.
Postdoctoral supervisor, 2012-2015.
- Dr. Mordecai-Mark Mac Low (mordecai@amnh.org, +1 212-496-3443).
Curator at the American Museum of Natural History.
Postdoctoral supervisor, 2010-2012.
- Dr. Axel Brandenburg (brandenb@nordita.org, +46 8 5537-8707).
Professor at Nordic Institute for Theoretical Physics - Stockholm.
Collaborator, 2005-.
- Dr. Marc Kuchner (Marc.Kuchner@nasa.gov, +1 301-286-5165).
Research Scientist at NASA Goddard Space Flight Center.
Collaborator, 2010-.
- Dr. Anders Johansen (anders@astro.lu.se, +46 46 22 21589).
Professor at Lund University.
Collaborator, 2006-.
- Dr. Hubert Klahr (klahr@mpia.de, +49 6221-528-255).
Privatdozent at University of Heildeberg.
Collaborator, 2006-.
- Dr. Bengt Gustafsson (bg@astro.uu.se, +46 18 471 5959).
Professor at Uppsala University, emeritus.
Academic mentor, 2005-2009.
- Dr. João Alves (joao.alves@univie.ac.at, +43 1 4277.538.10).
Professor at University of Vienna.
Former research mentor, 2003-2004.
- Dr. Nicole S. van der Blik (nvdbleik@ctio.noao.edu, +56-51-205205).
Associate Scientist at Cerro Tololo Interamerican Observatory.
Former employer and research mentor, 2003-2004.
- Dr. Gustavo Mello (gustavo@ov.ufrj.br, +55 21 2263-0685 ext. 238).
Professor at Federal University of Rio de Janeiro.
Former academic mentor, Undergraduate research advisor, Collaborator, 1999-.
- Dr. Daniela Calzetti (calzetti@astro.umass.edu, +1 413 545-3556).
Professor at University of Massachusetts, Amherst.
Mentor during 10-week summer student program at STScI, 2002.
- Dr. André Moitinho (andre@sim.caul.pt, +351 21 750 00 00).
Research Assistant at Lisbon University.
Former research mentor, 2003-2004.