

## **Rodrigo Andrés Leiva Espinoza**

Email: rodleiva.astro@gmail.com

Nationality: Chilean

### **Research Interests**

Formation and evolution of the solar system. Characterization and modeling of small solar system bodies. Stellar occultations, astrometry, photometry, and instrumentation. Statistical methods.

### **Education**

**21/07/2017** Ph.D Astronomy and Astrophysics. Double degree between Université Pierre et Marie Curie, France and Pontificia Universidad Católica de Chile, Chile. Advisors: Dr. Bruno Sicardy, Dr. Leonardo Vanzi.

**15/04/2014** M.Sc. Astrophysics. Pontificia Universidad Católica de Chile, Chile.

**07/10/2011** BS. Engineering, Universidad Técnica Federico Santa María, Chile. Electronics.

### **Employment**

**15/4/2021 – to date** Departamento de Astronomía. Universidad de Chile. Postdoctoral Researcher.

**1/2/2021 – 14/4/2021** Lagrange Laboratory, Observatoire de la Côte d'Azur. Nice, France. Invited Postdoctoral Researcher.

**13/11/2017 – 13/11/2020** Southwest Research Institute. Department of Space Studies. Boulder, Colorado. USA. Postdoctoral Researcher.

**20/03/2007 – 30/09/2010** Modular Mining Systems, Santiago, Chile. Project Engineer.

### **Academic Experience**

**01/03/2006 - 30/06/2007** Lecturer (part-time). Physics department, Universidad Técnica Federico Santa María. "Introduction to physics" (for first-year engineering students).

**01/07/2006 - 30/11/2006** Lecturer (part-time). Physics department, Universidad Técnica Federico Santa María, "Physics I: Mechanics" (for first-year engineering students).

### **Awarded Funding Projects**

NASA ROSES Solar System Observations program, 2018 (as co-I). "Occultation Studies in the Outer Solar System". PI: Young, L. Southwest Research Institute.

### **Telescope proposals awarded as PI**

ALMA Cycle 4: 3.3h(12m), 28(ACA).

MPG2.2m/WFI: 1n, 2016.

SARA-CT/imager: 3n, 2016, 2017.

LCOGT/1m: 10h, 2017.

Gemini/GMOS: 4h, 2017.

Gemini/Zorro: 1h 2020.

### **Journal Referee Duties**

6 reviews for the journals Astronomy & Astrophysics, Astronomical Journal, Monthly Notices of the Royal Astronomical Society, Icarus and Astrophysical Journal Supplement Series.

### **Programming and computer skills**

Proficient in Python. Experience in C, IDL, Fortran, Unix shell scripting.

Experience in SQL querying and administration (MySQL, PostgreSQL).

Experience with control version systems (CVS, git).

### **Other activities**

October 2019. Co-convenor of the session SB5: "TNOs and their dust environment, Pluto, 2014 MU69, and Centaurs". Joint Meeting "DPS/EPSC". 15-20 September 2019. Geneva. Switzerland

### **Expeditions**

August 2018. Coordinator of the research expedition to Colombia for the stellar occultation by 2014 MU69 Arrokoth, target of NASA New Horizons extended mission.

## Languages

Native Spanish speaker. Proficient in spoken and written English.

## Publications. Book Chapters

Sicardy, B., Renner, S., **Leiva, R.**, Roques, F., El Moutamid, M., Santos-Sanz, P., Desmars, J. 2020 "The dynamics of rings around Centaurs and trans-Neptunian objects". In "The Trans-Neptunian Solar System". Prrialnik, Barucci, and Young editors. Elsevier. USA.

## Publications. Peer-reviewed journals

\*Citations retrieved on March 2021 from the Web of Science, Researcher ID:AAV-2908-2020.

**Leiva, R.**, Buie, M.W., Keller, J., Kavelaars, J.J., et al. (2020). "Stellar occultation by resonant TNO (523764) 2014 WC510 reveals a close binary TNO". Planet. Sci. J. 1, 48. No cites.

Strauss, R., **Leiva, R.**, Keller, J., Wilde, E., et al (2020). The Sizes and Albedos of Centaurs 2014 YY49 and 2013 NL24 from Stellar Occultation Measurements by RECON. Planet. Sci. J. 2, 22. No cites

Souami, D., Braga-Ribas, F., Sicardy, B., Morgado, B., [and 40 others, including **Leiva, R.**] (2020). "A multi-chord stellar occultation by the large trans-Neptunian object (174567) Varda". A&A, 643, A125. No cites.

Buie, M.W., **Leiva, R.**, Keller, J., Desmars, J., et al. (2020). "A Single-chord Stellar Occultation by the Extreme Trans-Neptunian Object (541132) Leleakuhonua". AJ, 159, 5. No cites.

Buie, M. W., Porter, S., Tamblyn, P., Terrell, D., [and 129 others, including **Leiva, R.**] (2020). "Size and Shape Constraints of (486958) Arrokoth from Stellar Occultations". AJ, 159, 4. 1 cite.

Sicardy, B., **Leiva, R.**, Renner, S., Roques, F., et al. (2019). "Ring dynamics around non-axisymmetric bodies with application to Chariklo and Haumea". Nature Astronomy, 3, 146. 4 cites.

Meza E., Sicardy, B., Assafin, M., Ortiz, J. L., [and 166 others, including **Leiva, R.**] (2019). "Lower atmosphere and pressure evolution on Pluto from ground-based stellar occultations, 1988-2016". A&A, 625, A24. 5 cites.

**Leiva, R.**, Sicardy, B., Camargo, J. I. B., Ortiz, J.L., et al. (2017). "Size and Shape of Chariklo from Multi-epoch Stellar Occultations". AJ ,154, 159. 10 cites.

Lellouch, E., Moreno, R., Muller, T., Fornasier., [and 8 others, including **Leiva, R.**] (2017). "The thermal emission of Centaurs and trans-Neptunian objects at millimeter wavelengths from ALMA observations". A&A, 608, A45. 9 cites.

Dias-Oliveira, A., Sicardy B., Ortiz J.L., Braga-Ribas F., **Leiva, R.**, et al. (2017). "Study of the Plutino Object (208996) 2003 AZ(84) from Stellar Occultations: Size, Shape, and Topographic Features". AJ, 154, 1. 12 cites.

Berard, D., Sicardy, B., Camargo, JIB., Desmars, J., [and 78 others, including **Leiva, R.**] (2017). "The structure of Chariklo's rings from stellar occultations." AJ 154, 144. 8 cites.

Benedetti-Rossi,G., Sicardy,B., Buie,M. W., Ortiz,J. L., [and 25 others, including **Leiva, R.**] (2016)."Results from the 2014 November 15th multi-chord stellar occultation by the TNO (229762) 2007 UK126". AJ, 152, 6. 12 cites.

Dias-Oliveira, A., Sicardy, B., Lellouch, E., Vieira-Martins, R., [and 42 others, including **Leiva, R.**] (2014). "Pluto's atmosphere from stellar occultations in 2012 and 2013". AJ, 811, 1. 18 cites.

Braga-Ribas, F., Sicardy B., Ortiz, J.L., Snodgrass, C., [and 60 others, including **Leiva, R.**] (2014). "A ring system detected around the Centaur (10199) Chariklo". Nature. 508, 72. 114 cites.

Braga-Ribas, F., Sicardy B., Ortiz, JL, Lellouch E., [and 52 others, including **Leiva, R.**] (2013). “The size, shape, albedo, density, and atmospheric limit of transneptunian object (50000) Quaoar from multi-chord stellar occultations”. AJ, 773, 1. 35 cites.

**Publications. Non-refereed.**

Hsieh, H., Bannister, M., Bolin, B., Durech, J., [and 11 others, including **Leiva, R.**] (2019). “Maximizing LSST Solar System Science: Approaches, Software Tools, and Infrastructure Needs”. arXiv:1906.11346  
Contribution: section about astrometry, orbit fitting and the use of LSST for stellar occultations.