Rodrigo Leiva
Ph.D. in Astrophysics – Electronics Engineer
Postdoctoral Researcher. Astronomy Department – Universidad de Chile

Research Interests

Formation and evolution of the early solar system and its connection with exoplanets. Characterization and modeling of small solar system bodies using stellar occultations, astrometry, and photometry. Interest in instrumentation for solar system studies and application of statistical methods.

Education

- **21/07/2017** Ph.D. in Astronomy and Astrophysics. Université Pierre et Marie Curie, France. Double degree with Pontificia Universidad Católica de Chile. Advisors: Dr. Bruno Sicardy, Dr. Leonardo Vanzi. "Stellar occultations by trans-Neptunian objects and Centaurs: Application to Chariklo and its ring system"
- **15/04/2014** M.Sc. Astrophysics. Pontificia Universidad Católica de Chile.
- **07/10/2011** BS. Engineering, Universidad Técnica Federico Santa María, Chile. Electronics.

Employment

- **15/4/2021 – present**. Astronomy Department, Universidad de Chile. Chile. Fondecyt Postdoctoral Fellow. "Dating of collisional asteroid families in the main belt in the Gaia era."
- **1/2/2021 – 30/6/2021** Laboratoire Lagrange, Observatoire de la Cote d'Azur. Nice, France. Postdoctoral Researcher (as Invited assistant astronomer).
- **13/11/2017 – 13/11/2020** Southwest Research Institute. Department of Space Studies. Boulder, Colorado. USA. Postdoctoral Researcher for the citizen science project RECON (NSF).
- **20/03/2007 – 30/09/2010** Modular Mining Systems, Santiago, Chile. Project Engineer.

Academic Experience

- **01/03/2022 – 30/07/2022** Teacher (part-time). Astronomy Department, Universidad de Chile. "Guided research AS4107", supervising a last-year undergraduate astronomy student.
- **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).

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". Prialnik, Barucci, Young editors. Elsevier. USA.

Publications: Peer-reviewed journals (as 1st or 2nd author)

- **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
- 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, 1.
- 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.
- 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.
- **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.
- Other 14 peer-reviewed publications as co-author. Orcid: 0000-0002-6477-1360

Journal Referee Duties

Eight refereed articles for the journals Astronomy & Astrophysics (A&A), The Astronomical Journal (AJ), The Astrophysical Journal Supplement Series (ApJS), Monthly Notices of the Royal Astronomical Society (MNRAS), and Icarus.

Awarded Funding Projects

- 2021 Fondecyt Postdoctoral Fellowship, ANID. Chile. “Dating of collisional asteroid families in the main belt in the Gaia era.”
- 2018. NASA ROSES Solar System Observations program (as co-I). “Occultation Studies in the Outer Solar System.” PI: Young, L. Southwest Research Institute.

Telescope proposals awarded as PI

Experience in photometry and astrometry in the visible. ALMA Cycle 4: 3.3 hour(12m), 28 hours(ACA). MPG2.2m/WFI: 1 night, 2016. SARA-CT/imager: 3 nights, 2016, 2017. LCOGT/1m: 10 hours, 2017. Gemini/GMOS: 4 hours, 2017. Gemini/Zorro: 1 hour, 2020. Speculoos: 12 nights, 2022A. Speculoos: 12 nights, 2022B. Las Cumbres Observatory: 232 hours.

Languages

- Spanish: native speaker.
- English: proficient in spoken and written English.
- French: intermediate.

Programming and computer skills

Proficient in Python. Experience in IDL, C, Fortran, Unix shell scripting, SQL querying and administration (MySQL, Postgresql), Docker containerization, automation of data-reduction pipelines and control version systems (CVS, git).