Cristóbal Sifón

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Research Interests

I am an observational astrophysicist. My research focuses on galaxy cluster physics including observable–mass scaling relations for cosmological analyses, brightest cluster galaxies, the mass content of cluster galaxies and diffuse radio emission. I am also interested in intrinsic galaxy alignments, both as contaminants for cosmic shear and as a physical mechanism in its own right. I use various tools and techniques to study these phenomena, including weak gravitational lensing, spectroscopy, and the exploitation of optical surveys in general. I have presented my work at various conferences, workshops and seminars in Chile, Europe and the US.

Collaborations: Atacama Cosmology Telescope (ACT) — Canadian Cluster Comparison Project (CCCP) — Galaxy Cluster Mass Reconstruction Project — Hyper-Suprime Cam survey (HSC) — Kilo-Degree Survey (KiDS) — Large Synoptic Survey Telescope Dark Energy Science Collaboration (LSST-DESC) — Multi-Epoch Nearby Cluster Survey (MENeaCS).

Employment and Education

[2016 – Present] Postdoctoral Research Associate, Princeton University, USA
[2012 – 2016] – Ph.D. Astrophysics, Universiteit Leiden, The Netherlands
[2010 – 2012] – M.Sc. Astrophysics, P. Universidad Católica de Chile, Chile
[2005 – 2010] – B.Sc. Astronomy, P. Universidad Católica de Chile, Chile

Student Mentoring

[2017 – Present] Naomi Robertson, Oxford University (UK): PhD thesis project co-advising.
[2018 – Present] Malik Walker, Princeton University: Undegraduate Summer Research Program and Junior Project Mentorships.

Successful Observing Proposals (as PI)

Gemini-South Telescope – 24 h for imaging and spectroscopy of massive high-redshift galaxy clusters
Giant Metrewave Radio Telescope – 44 h to search for diffuse radio emission in massive galaxy clusters
VLT Survey Telescope – 6 h for weak lensing observations of a massive galaxy cluster

Observing Experience: I have spent roughly 180 hours observing in optical (Gemini-South) and near-infrared (ESO-NTT) telescopes performing both imaging and spectroscopy of galaxy clusters.

Technical skills: I am an experienced `python` programmer, and I also have some experience with IRAF/PyRAF. I have written `pygmos`, a Python/PyRAF pipeline to reduce Gemini-GMOS spectra which is available `here`. Other codes I have written are posted at my `github` page.

Community Activity: I have served as a referee for A&A, ApJ, MNRAS, and Nature Astronomy.

Teaching Assistant Experience

Leiden: Stellar dynamics
U. Católica: Extragalactic astrophysics; Experimental astrophysics; Laboratory of thermodynamics and kinetic theory

Other Work Experience

[2007 – 2008] Ski instructor at Homewood Mountain Ski Resort in Lake Tahoe, CA. Obtained the certification as Level I ski instructor by the Professional Ski Instructors of America (PSIA).
[2006 – 2007] Lift operator at Sun Valley Resort, Sun Valley, ID.

References

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- Prof. L. Felipe Barrientos (*MSc advisor*)
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