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), Kilo-Degree Survey (KiDS), Hyper-Suprime Cam survey (HSC), 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
2016 – Ph.D. Astrophysics, Universiteit Leiden, The Netherlands
2012 – M.Sc. Astrophysics, P. Universidad Católica de Chile, Chile
2010 – B.Sc. Astronomy, P. Universidad Católica de Chile, Chile

Student Mentoring

2018 – Undegraduate Summer Research Program, Princeton University
2017 — Present – Naomi Robertson, PhD student, Oxford University (UK). Mentoring one of her thesis projects combining data from ACT and KiDS.

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

2013-B – Stellar Dynamics (Leiden, Prof. S. Portegies Zwart)
2012-A – Extragalactic Astrophysics (PUC, Prof. L. F. Barrientos)
2011-A – Extragalactic Astrophysics (PUC, Prof. L. F. Barrientos)
2011-A – Laboratory of Thermodynamics and Kinetic Theory (PUC, Prof. U. Volkmann)
2010-B – Experimental Astrophysics (PUC, Prof. L. F. Barrientos)

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

- Prof. Henk Hoekstra (*PhD advisor*)
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