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### Education:

- Doctor of Philosophy in Astronomy, Universidad de Chile, Chile: Mar 2010 - Feb 2016.
    - **Awarded graduate student of 2013 prize, Department of Astronomy, U. de Chile.**
    - **Awarded CONICYT PhD fellowship by the Chilean National Commission for Scientific and Technological Research.**
  - MSc by research in Astrophysics, University of Central Lancashire, UK: Oct 2008 - Jan 2010.
  - Bachelor of Engineering, Electronics and Communication, Anna University, India: Aug 2002 - Jun 2006.
    - **85% + distinction.**
    - **Awarded class topper of 2006 prize.**
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### Appointments:

- National Centre for Supercomputing Applications, University of Illinois at Urbana-Champaign, USA (*Current*): Survey Science Fellow at the Centre for AstroPhysical Surveys.
  - University of California, Los Angeles, USA (2018 - 2021): Postdoctoral scholar.
  - University of Melbourne, Australia (2015 - 2018): Postdoctoral scholar.
  - Universidad de Chile, Chile (2011 - 2014): Masters and undergraduate co-lecturer: Cosmology and general astronomy (4 hours per week).
  - Electronic Data Systems (EDS), India (2006 - 2008): Software Engineer: Technology - IBM mainframes and UNIX.
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### Grants / Academic Credentials:

- 2025: Fermi National Accelerator Laboratory - Universities Research Association's Visiting Scholars Program (VSP): 20,000 USD towards cosmological inference from SPT-3G data.
  - 2021: Survey Science Fellowship, Centre for AstroPhysical Surveys, National Centre for Supercomputing Applications.
  - 2017: Laby-Betty travel grant, University of Melbourne.
  - 2015: Simons foundation grant, Aspen centre for Physics.
  - 2013: Research student of the year, Department of Astronomy, UChile.
  - 2013: Universidad de Chile scholarship to carry out PhD thesis work at Princeton University for three months.
  - 2010 - 2015: CONICYT PhD fellowship, National Commission of Scientific Research and Technology, Chile.
  - 2006: Graduate student of the year prize, Sri Sairam Engineering College, India.
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## Student supervisions:

- Achintya Krishnan, PhD (Ongoing). **Topic:** Kinematic Sunyaev–Zeldovich effect and the large-scale structures of the Universe. Co-supervision with Prof. Joaquin Vieira, **University of Illinois, Urbana Champaign, USA**.
  - Ana Carolina Oliveira, PhD (Ongoing). **Topic:** Thermal Sunyaev–Zeldovich effect and gravitational lensing. Co-supervision with Dr. Kimmy Wu, **Stanford University, USA**.
  - Karthik Prabhu, PhD (Ongoing). **Topic:** Primary CMB and gravitational lensing. Co-supervision with Prof. Lloyd Knox, **University of California, Davis, USA**. **No. of publications: 2**.
  - Chris Tandoi, PhD (Ongoing). **Topic:** mm-wave transients. Co-supervision with Prof. Gil Holder, **University of Illinois, Urbana Champaign, USA**.
  - Kevin Levy, PhD (Ongoing). **Topic:** CMB lensing and the large-scale structures of the Universe. Co-supervision with Prof. Christian Reichardt, **University of Melbourne, Australia**.
  - Eduardo Schiappucci, PhD (2024). **Topic:** Kinematic Sunyaev–Zeldovich effect. Co-supervision with Prof. Christian Reichardt, **University of Melbourne, Australia**. **No. of publications: 1**.
  - Kevin Levy, MSc (2022). **Topic:** CMB lensing. Co-supervision with Dr. Kaustuv Basu, **University of Bonn, Germany**. **No. of publications: 1**.
  - Dr. Sanjay Patil, PhD (2021). **Topic:** CMB lensing. Co-supervision with Dr. Christian Reichardt, **University of Melbourne, Australia**. **No. of publications: 4**.
  - Dr. Tracey Friday, PhD (2021). **Topic:** Large-scale structures and SNe cosmology. Co-supervision with Dr. Roger Clowes, **University of Central Lancashire, UK**. **No. of publications: 2**.
  - Alexia Lopez, MSc (2021). **Topic:** Large-scale structures of the Universe. Co-supervision with Dr. Roger Clowes, **University of Central Lancashire, UK**. **No. of publications: 1**.
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## Services to Astronomy Community and Professional activities:

- **Telescope Allocation Committee:**
  - Member of the National Radio Astronomy Observatory (NRAO) Science Review Panel (Nov 2021 - Nov 2023).
- **Collaboration responsibilities and leadership roles:**
  - Co-ordinator of AtLAST’s primordial universe working group (WG, Apr 2025 - to date).
  - Co-ordinator of SPT CMB secondaries and cross-correlations WG (Oct 2024 - to date).
  - SPT x Euclid Project management committee (September 2024 - to date).
  - Co-ordinator of CMB-S4 galaxy clusters WG (May 2021 - to date).
  - Co-ordinator of SPT data analysis WG calls (Jan 2021 - to date).
- **Reviewer:**
  - **Journals:**
    - \* Physical Review Letters (May 2021 - to date).
    - \* Physical Review D. (Sep 2020 - to date).
    - \* Journal of Cosmology and Astroparticle Physics (Feb 2024 - to date).
    - \* Monthly Notices of the Royal Astronomical Society (May 2024 - to date).

- \* Galaxies, Multidisciplinary Digital Publishing Institute (MDPI) (Sep 2021 - to date).
  - NSF 2025 Graduate Research Fellowship Program (GRFP) (Nov 2024 - to date).
  - **Tutorials:**
    - Tutor at the computing boot camp (August 2023) - Organised by Centre for AstroPhysics Surveys, UIUC.
  - **Colloquium / Seminar organisation:**
    - Colloquium organiser, Centre for AstroPhysics Surveys, UIUC (Jan 2022 - Aug 2023).
      - \* Developed and actively maintaining <https://caps.ncsa.illinois.edu/home/talks/>.
    - Astrophysics colloquium organiser, School of Physics, U. of Melbourne (Feb 2017 - April 2018).
    - Cosmology journal organiser, School of Physics, U. of Melbourne (Feb 2016 - Feb 2017).
    - Journal club organiser, Department of Astronomy, U. of Chile (Feb 2012 - Feb 2013).
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### Collaborations:

**Present:** South Pole Telescope (SPT), CMB-S4, South Pole Observatory (BICEP+SPT), Terahertz Intensity Mapper (TIM), CMB-HD and Atacama Large Aperture Submillimeter Telescope (AtLAST).

**Past:** Atacama B-mode Search (PhD thesis project).

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**Conference/meeting talks:** ★- Invited/Review; Black - Conference; Red - Colloquium / Seminar.

- ★ “Cosmology using Stage-IV Surveys”, The Concurrence of Mega-Surveys (Unravelling a multi-messenger view of our Universe using a synergy of advanced analysis techniques, machine learning and extremely large datasets)”, International Centre for Theoretical Sciences (ICTS), India, 2026.
- “Cosmology with the South Pole Telescope and Beyond”, CMB Constellation meeting, Stanford, April 2025.
- ★ “South Pole Telescope”, CMB-Bharat Seminar Series, Dec 2024.
- ★ “South Pole Telescope x Euclid”, Euclid CMBXC WG Meeting, Kavli Institute for Cosmology, University of Cambridge, Nov 2024.
- “Cosmology and Astrophysics with the Secondary Anisotropies of the Cosmic Microwave Background from South Pole Telescope and Future Surveys.”, University of New Mexico, New Mexico State University, Texas A&M University, University of California Irvine, University of California Los Angeles, California Institute of Technology, University of Texas at Austin, USA, Oct-Dec 2024.
- ★ “Review talk on the kinematic Sunyaev–Zeldovich Effect”, New Physics from Old Light: Illuminating the Universe with CMB Secondaries, University of Cambridge, September 2024..
- ★ “South Pole Telescope”, CMB-S4 meeting, University of Illinois Urbana Champaign, July 2024.
- ★ “Constraining the Epoch of Reionisation using CMB as the backlight”, IoA50: New Frontiers of Astronomy, University of Cambridge, July 2024.
- ★ “Constraints on the Epoch of Reionisation using the kSZ 4-pt measurement from the South Pole Telescope”, PASCOS 2024 - Rencontres du Vietnam, July 2024.

- ★ “Cosmology with the South Pole Telescope (SPT): Latest and Upcoming results from SPT”, Cosmology from home, June 2024.
- “Sunyaev-Zeldovich from CMB Surveys”, University of Southern California / University of California Santa Cruz, USA, March 2024.
- “Sunyaev-Zeldovich from CMB Surveys”, University of Cincinnati / Case Western Reserve University, USA, Nov 2023.
- “Constraining the Epoch of Reionisation Using the kinematic Sunyaev-Zeldovich Signal”, University of Illinois Urbana Champaign / University of Minnesota, USA, Sep/Oct 2023.
- “Prospects for Kinematic Sunyaev-Zeldovich Measurements from Current and Future CMB Experiments”, Observing the Universe at millimetre wavelengths, Grenoble, France, June 2023.
- “Towards a robust detection of the kinematic Sunyaev-Zeldovich power spectrum using South Pole Telescope and Herschel-SPIRE data.”, California Institute of Technology, University of California Davis, and University of Wisconsin Milwaukee, USA, April/May 2023.
- ★ “Observing and interpreting the most ancient light in the universe”, Mini School on Gravitation and Cosmology, Indian Institute of Technology IIT-Madras, India, Nov 2022. (Invited Review Talk)
- “Demystifying the dark side of the universe Using kinematic and thermal Sunyaev-Zeldovich effects.”, Tata Institute of Fundamental Research, Nov 2022.
- ★ “Kinematic Sunyaev-Zeldovich effect and reionisation science from small-scale CMB experiments”, CMB+EoR Summer workshop, Montreal, Canada, July 2022. (Invited Review Talk)
- “First detection of polarized CMB-Cluster lensing using SPTpol and DES”, Cluster Mass ESA meeting, Virtual, Sep 2021.
- “Demystifying the dark side of the universe using secondary cosmic microwave background anisotropies.”, USC, USA, Jan 2021 and NCSA, USA, May 2021.
- “CMB-Cluster lensing”, Stanford / UCLA, USA, Jan 2018; and Harvard / Cornell / Princeton, USA, Sep 2017.
- “CMB-Cluster lensing forecasts for the CMB-S4 experiment”, Clusters 2017, Spain, Jul 2017.
- “CMB-Cluster lensing with SPTpol and SPT-3G: Forecasts and systematic error budgets”, Swinburne University and University of Queensland, Australia, Jun 2017.
- “Primordial gravitational waves and CMB polarization”, University of Melbourne, School of Physics colloquium, Australia, Aug 2016.
- “Towards the first detection of CMBPol cluster lensing using SPTpol data”, Australian Astronomical Society Annual meeting, University of Sydney, Australia, Jul 2016.
- “Status of the Atacama B-mode Search experiment”, Cosmology on the Beach, Mexico, Jan 2016.
- “Search for primordial gravitational waves using Atacama B-mode Search experiment”, SOCHIAS (Chilean Astronomical Society) annual meeting, Chile, Mar 2015.
- “Search for primordial B-modes from CMB polarization and characterizing ABS telescope”, Alpine cosmology workshop, Austria, Jul 2014.
- “Pointing and beam characterization of the Atacama B-mode Search (ABS) experiment”, Workshop on New Light in Cosmology from the CMB, ICTP, Italy, Jul 2013.
- “CMB Polarization and the search for tensor modes”, CosmoSur II, Chile, May 2013.

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**References:**

- Prof. John Carlstrom (Director of the South Pole Telescope): Chair of the Department of Astronomy and Astrophysics; Subramanyan Chandrasekhar Distinguished Service Professor, University of Chicago; **Email:** [jc@kicp.uchicago.edu](mailto:jc@kicp.uchicago.edu).
  - Prof. Lloyd Knox: Vaida Endowed Chair in Physics, Department of Physics and Astronomy, University of California Davis; **Email:** [lknox@ucdavis.edu](mailto:lknox@ucdavis.edu).
  - A/Prof. Bradford Benson (Director of operations of the South Pole Telescope): Associate Professor, Department of Astronomy and Astrophysics / Scientist, University of Chicago / Fermi National Lab; **Email:** [bbenson@astro.uchicago.edu](mailto:bbenson@astro.uchicago.edu)
  - Prof. Gilbert Holder: Brand & Monica Fortner Endowed Chair in Physics, Department of Physics, University of Illinois Urbana-Champaign; **Email:** [gholder@illinois.edu](mailto:gholder@illinois.edu)
  - A/Prof. Christian Reichardt: Associate Professor, School of Physics, The University of Melbourne; **Email:** [christian.reichardt@unimelb.edu.au](mailto:christian.reichardt@unimelb.edu.au)
  - A/Prof. Nathan Whitehorn: Associate Professor, Department of Physics and Astronomy, Michigan State University; **Email:** [nathanw@msu.edu](mailto:nathanw@msu.edu)
  - Prof. Suzanne Staggs: Henry DeWolf Smyth Professor of Physics, Department of Physics, Princeton University; **Email:** [staggs@Princeton.EDU](mailto:staggs@Princeton.EDU)
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