

# Mathew S. Madhavacheril

Center for Particle Cosmology  
University of Pennsylvania  
Philadelphia, PA 19104

✉ [mathm@sas.upenn.edu](mailto:mathm@sas.upenn.edu)

🌐 [msyriac.github.io](https://msyriac.github.io)

🔗 [github.com/msyriac](https://github.com/msyriac)

**Last Updated:** August 14, 2023

## Academic Appointments

- **University of Pennsylvania**, Assistant Professor (2022-)  
Department of Physics and Astronomy
- **Perimeter Institute**, Peebles Fellow (2019-2022)  
Senior Postdoctoral Fellowship, Center for the Universe
- **Princeton University**, Postdoctoral Researcher (2016-2019)  
Department of Astrophysical Sciences

## Education

- **Stony Brook University**, *PhD* (2016) Physics
- **University of Cambridge**, *BA (Aff.)* (2011), Part II and Part III Physics
- **St. Stephen's College, University of Delhi**, *BSc. (Hons.)* (2009), Physics

## Grants

- PI on NSF Astronomy and Astrophysics Research Grant (AAG), Award 2307727 “Precision Cosmology and Astrophysics with CMB Secondaries”, \$603,824 (2023)
- Senior Personnel and WBS Level-3 Lead on NSF Mid-scale Research Infrastructure-2: “Advanced Millimeter Survey Instrumentation in Chile”, \$52.7 million, PI: Mark Devlin (2023)
- PI on NASA Astrophysics Theory (NASA-ATP) 21-ATP21-0145 “Inflation Physics from Cosmic Velocities with Joint Galaxy and CMB Simulations”, \$543,706 (2021)

## Awards

- **STFC UK Rutherford Fellowship**, University of Cambridge (2021; declined for faculty offer)
- **P. J. E. Peebles Fellowship**, Perimeter Institute (2019)
- **Astronomical Society of New York Graduate Paper Prize** (2015)
- **H. B. Silsbee Award for Excellence**, Physics Department, Stony Brook University (2015)
- **Jonathan Kauffman Student Excellence Prize in Physics**, Physics Department, Stony Brook University (2014)
- **Jennings Prize**, Wolfson College, University of Cambridge (2011)
- **Gates Cambridge Scholarship**, University of Cambridge (2009)

**Teaching Experience**

- ASTR 0001 “A Survey of the Universe”: introductory astronomy for non-majors, Spring 2023, University of Pennsylvania
- Instructor and Co-organizer, Atacama Cosmology Telescope Data Analysis School (2019); Instructor for CMB-S4 Data School (2021)
- Instructor, “Coding in Python” and “Statistical Techniques” workshops, Undergraduate Summer Research Program, Department of Astrophysical Sciences, Princeton (2018)
- Instructor for (1) Astronomy and (2) Pre-calculus at the Albert C. Wagner Youth Correctional Facility through the Princeton Prison Teaching Initiative (2018)
- Teaching Assistant, Stony Brook University (2011 - 2013)
- Faculty, Cambridge Tradition and Cambridge Prep Summer Schools, Oxbridge Academic Programs, taught Astronomy and Computer Science, UK (2011, 2012)

**Professional Service**

- Member, Simons Observatory Theory and Analysis Committee; steering the scientific direction of SO theory and analysis efforts (2020-)
- WBS Level-3 Lead, Simons Observatory and Advanced Simons Observatory “Science Readiness (Large Aperture Telescope)” (2023-)
- WBS Level-3 Lead, Simons Observatory “Initial Science Observations” (2023-)
- Co-Lead, Lensing Reconstruction Working Group, Simons Observatory (2018-)
- Served as Pipeline Working Group Co-Lead, “Systematics and Science Interfaces”, Simons Observatory Project (2018-2023)
- Served as member of the Simons Observatory Data Management Committee (2017-2018)
- Panelist for grant review for the National Science Foundation (NSF)
- Co-organizer, Undergraduate Summer Research Program, Department of Astrophysical Sciences, Princeton (2018)
- Referee for *Nature Astronomy*, *Monthly Notices of the Royal Astronomical Society*, *Astrophysical Journal*, *Astronomy & Astrophysics*, *Journal of Cosmology & Astroparticle Physics* and *Physical Review*
- Remote Observing Coordinator, ACTPol observations (2014-2018)
- ACTPol telescope site visit, Cerro Toco, Chile, to help with site operations (2013)

## Collaboration Membership

- Ongoing:
  - Atacama Cosmology Telescope (ACT)
  - Simons Observatory
  - LSST DESC
  - External Collaborator on DESI, DES and HSC
- Planned: CMB-S4, CMB-HD, PICO

## Talks

1. Seminar: Johns Hopkins University, 06/23
2. Seminar: University of Geneva, 06/23
3. Invited Plenary Talk: “CMB Lensing and the Late-time Universe”, Eu-CAPT Annual Symposium, CERN, 05/2023
4. Seminar: Rutgers University, 04/2023
5. Seminar: Department of Physics, Princeton University, 04/2023
6. Invited Talk: “Cosmology with ACT CMB Lensing”, Future Science with CMB x LSS, Kyoto, 04/2023
7. Invited Plenary Talk: “Synergies between the Simons Observatory and Rubin Observatory LSST”, LSST-DESC virtual meeting, 02/2023
8. Invited Review Talk: “Key Challenges in Galaxy and CMB Lensing”, University of Cambridge 07/2022
9. Invited Plenary Talk: “Galaxy Clusters 2022” Symposium, STScI 04/2022
10. Seminar: Physics and Astronomy, University of Pennsylvania, Philadelphia 04/2022
11. Colloquium: Physics and Astronomy, California State University, Los Angeles, CA 4/2022
12. Invited Plenary Talk: Outreach talk at “Queen’s Space Conference”, Kingston, Ontario 02/2022
13. Invited Plenary Talk: “Spergelfest Symposium”, Princeton and New York, 10/2021
14. Invited Plenary Talk: “Cosmology From Home” conference, 07/2021
15. Invited Talk: “Cosmological Frontiers in Fundamental Physics”, Paris, France, 05/2021
16. Seminar: Cosmology Seminar, University of Oxford, UK, 05/2021
17. Seminar: Astrophysics/Gravity/Cosmology seminar, University of Illinois at Urbana-Champaign, IL, 04/2021
18. Colloquium: Department of Physics and Astronomy, University of Southern California, CA 2/2021
19. Seminar: LEPP seminar, Cornell University, NY 01/2021
20. Colloquium: University of Arizona Steward Observatory and NOIRLab, 11/2020

21. Seminar: German Center for Cosmological Lensing (GCCL), 10/2020
22. Seminar: HEA at MPA Garching, Germany, 10/2020
23. Colloquium: Aspen Physics Summer colloquium, 08/2020
24. Seminar: Institute of Astronomy, University of Cambridge, UK 06/2020
25. Seminar: Kavli IPMU, Kashiwa, Japan 04/2020 (invited, but canceled due to COVID-19)
26. Colloquium: Institute for Astronomy, University of Hawaii, 04/2020 (invited, but canceled due to COVID-19)
27. Invited Talk: Perimeter-CITA Day, Canadian Institute for Theoretical Astrophysics, ON 11/2019
28. Colloquium: Department of Physics and Astronomy, University of Southern California, CA 10/2019
29. BCCP Cosmology Seminar, University of California, Berkeley CA 04/2019
30. KIPAC Cosmology Seminar, Stanford University, Stanford CA 04/2019
31. Seminar at High Energy Theory Group, Physics Department, Boston University, MA 03/2019
32. Seminar at KICP, University of Chicago, IL 02/2019
33. Cosmology Lunch Seminar, Department of Astrophysical Sciences, Princeton University 02/2019
34. Invited Talk: BCCP Lensing Workshop, University of California, Berkeley CA 01/2019
35. Gravity Group Seminar, Physics Department, Princeton University 09/2018
36. Public outreach talk on the Hubble constant tension, Rutgers University, NJ 07/2018
37. Seminar at Rutgers University, New Brunswick NJ 11/2017
38. Seminar at University of Pennsylvania, Philadelphia PA 02/2017
39. Gravity Group Seminar, Department of Physics, Princeton University, NJ 12/2016
40. Seminar at Perimeter Institute for Theoretical Physics, Waterloo, Canada 11/2016
41. APEC Seminar at Kavli IPMU, Kashiwa, Japan, 04/2016
42. Graduate Student Prize Lecture at Astronomical Society of New York Meeting, Skidmore College, Saratoga Springs NY 11/2015
43. Astrophysics Seminar, Imperial College, UK 09/2015
44. Astrophysics Seminar, University College London, UK 09/2015
45. Institute of Astronomy Seminar, University of Cambridge, UK 09/2015
46. Oxford Astrophysics Seminar, University of Oxford, UK 09/2015
47. Joint Stony Brook / Brookhaven National Lab Cosmology Seminar, NY 06/2015
48. Seminar at Canadian Institute for Theoretical Astrophysics, Toronto 05/2015

- 
49. Seminar at Perimeter Institute for Theoretical Physics, Waterloo, Canada  
05/2015
  50. Seminar at Yang Institute for Theoretical Physics, Stony Brook, NY  
02/2015
  51. Astronomy Seminar, Columbia University, NY 02/2015
  52. Cosmology Lunch Seminar, Princeton University, NJ 01/2015
  53. Department of Physics & Astrophysics Seminar, University of Delhi, India  
08/2014