Mathew Syriac Madhavacheril

Department of Physics and Astronomy
Stony Brook University
Stony Brook, NY 11790

Email: mathew.madhavacheril@stonybrook.edu
Web: astro.sunysb.edu/msyriac
Tel: +1 631 682 1681

Education

Stony Brook University, Stony Brook, NY
PhD (expected), Physics

University of Cambridge, Cambridge, UK
BA Affiliated, Part II and Part III Physics, First Class, 2011

St. Stephen's College, University of Delhi, New Delhi, India
BSc. (Hons.), Physics, First Class, 2009

Research Interests

Cosmology and particle astrophysics; data analysis and theory
CMB lensing; optical weak lensing and shear estimation; joint CMB/optical probes
Galaxy clusters; growth of structure
Astrophysical probes of particle dark matter

Awards and Grants

- Astronomical Society of New York (ASNY) Graduate Student Paper Prize (2015)
- LSST-DESC Student Travel Grant (2015)
- *Editor's Suggestion* and *Viewpoint in Physics* pick for first-author paper in *Physical Review Letters* (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)
- Usha-India Physics Prize, Physics Department, St. Stephen's College, Delhi (2009)
- Science Meritorious Award, University of Delhi (2009)

Teaching Experience

- Co-adviser for undergraduate researcher Danylo Yakymiv at Stony Brook University (2015)
- Teaching Assistant, Stony Brook University (2011 - 2013)
- Faculty, Cambridge Tradition and Cambridge Prep Summer Schools, Oxbridge Academic Programs, UK (2011, 2012)

Professional Service

- Remote Observing Coordinator (ROC) for ACTPol observations since 09/14
- Visited the ACTPol telescope site on Cerro Toco, Chile, 12/13 to help with site operations

Talks and Posters

- Contributed Talk at *Future Challenges in Shear Estimation*, University of Pennsylvania, PA 11/15
- LSST-DESC Meeting *Theory and Joint Probes* Work Update, Argonne National Lab, IL 10/15
- Astrophysics Seminar, Imperial College, UK 09/15
- Astrophysics Seminar, University College London, UK 09/15
- Institute of Astronomy Seminar, University of Cambridge, UK 09/15

- Oxford Astrophysics Seminar, University of Oxford, UK 09/15
- Contributed Talk at *Cosmology Meeting 2015*, Barcelona 09/15
- Joint Stony Brook / Brookhaven National Lab Cosmology Seminar, NY 06/15
- Seminar at Canadian Institute for Theoretical Astrophysics, Toronto 05/15
- Seminar at Perimeter Institute for Theoretical Physics, Waterloo, Canada 05/15
- LSST-DESC *Theory and Joint Probes* Working Group Update, Pittsburgh, PA 04/15
- Yang Institute for Theoretical Physics Seminar, Stony Brook, NY 02/15
- Department of Astronomy Seminar, Columbia University, NY 02/15
- Cosmology Lunch Seminar, Princeton University, NJ 01/15
- *CMB Polarization 2015*, Minneapolis, MN (Poster) 01/15
- Department of Physics & Astrophysics Seminar, University of Delhi, India 08/14
- *PCTS Dark Matter Workshop* (Poster), Princeton University, NJ 10/13

Skills Python, C, Modern Fortran, MPI, `bash` shell scripting

References

Prof. Neelima Sehgal neelima.sehgal@stonybrook.edu
Dr. Anže Slosar anze@bnl.gov
Prof. David Spergel dns@astro.princeton.edu

Mathew Syriac Madhavacheril: Publications

Department of Physics and Astronomy
Stony Brook University
Stony Brook, NY 11790

Email: mathew.madhavacheril@stonybrook.edu
Web: astro.sunysb.edu/msyriac
Tel: +1 631 682 1681

First Author

1. M. Madhavacheril, N. Sehgal for the ACT Collaboration, **"Evidence of Lensing of the Cosmic Microwave Background by Dark Matter Halos"**, Physical Review Letters (2015), picked as Editor's Suggestion and selected for Viewpoint in Physics, doi:10.1103/PhysRevLett.114.151302, arxiv:1411.7999

2. M. Madhavacheril, P. McDonald, N. Sehgal, A. Slosar, **"Building Unbiased Estimators from Non-Gaussian Likelihoods with Application to Shear Estimation"**, Journal of Cosmology and Astroparticle Physics (2014), doi:10.1088/1475-7516/2015/01/022, arxiv:1407.1906

3. M. Madhavacheril, N. Sehgal, T. Slatyer, **"Current Dark Matter Annihilation Constraints from CMB and Low-Redshift Data"**, Physical Review D (2014), doi:10.1103/PhysRevD.89.103508, arxiv:1310.3815

Collaborating Author

4. E. Schaan, S. Ferraro, M. Vargas-Magaña, K. M. Smith, S. Ho for the ACT Collaboration, **"Evidence for the kinematic Sunyaev-Zeĺdovich effect with ACTPol and velocity reconstruction from BOSS"**, arXiv 1510.06442
5. R. Allison, S. Lindsay, B. Sherwin for the ACT Collaboration, **"The Atacama Cosmology Telescope: Measuring radio galaxy bias through cross-correlation with lensing"**, Monthly Notices of the Astronomical Society (2015), doi:10.1093/mnras/stv991, arxiv:1502.06456
6. A. van Engelen, B. Sherwin, N. Sehgal for the ACT Collaboration, **"The Atacama Cosmology Telescope: Lensing of CMB Temperature and Polarization Derived from Cosmic Infrared Background Cross-Correlation"**, Astrophysical Journal (2014), doi:10.1088/0004-637X/808/1/7, arxiv:1412.0626
7. S. Naess for the ACT Collaboration, **"The Atacama Cosmology Telescope: CMB Polarization at** $200 < l < 9000$**"**, Journal of Cosmology and Astroparticle Physics, (2014), doi:10.1088/1475-7516/2014/10/007, arxiv:1405.5524