Sanjaykumar Patil

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EDUCATION

Doctor of Philosophy 2015-2020
School of Physics, The University of Melbourne

MSc. in Physics 2013-2015
Indian Institute of Technology Kharagpur

BSc. in Physics 2010-2013
Indian Institute of Technology Kharagpur

EXPERIENCE

Graduate Research Fellow Oct 2015-March 2020

The University of Melbourne

Worked in the Observational Cosmology group at the University of Melbourne.

- Developed pipelines to filter the time ordered data.
- Pre-processed the raw time ordered data to two-dimensional maps.
- Developed novel statistical techniques for analysing large data sets.
- Successfully eliminated major systematic contaminant in mass measurement.

Data Scientist March 2021 - Sept 2021

Astron Environmental Services

- Developed an application for histogram matching, which outperformed pre-existing softwares.
- Lead the data analysis team for vegetation monitoring of mining projects.
- Developed a pipeline in R for data merging.

Postdoctoral Research Scholar Sep 2021-present

University of Southern California

Working on realistic estimation of the Birkinshaw-Gull effect (moving lens) in the Simons Observatory data.

SCHOLARSHIPS AND AWARDS

- Melbourne international Engagement Award, The University of Melbourne (2015 - 2019)
- Inspire Fellowship, Department of Science and Technology, Government of India (2010 - 2015)
- Jean E Laby PhD Travel Bursary, The University of Melbourne (2017)
- Thesis write-up award, The University of Melbourne (2019)

PUBLICATIONS

A total of 17 publications in journals of international repute. Below I list first/second author publications

- S.Patil et al., "Suppressing the Thermal SZ-induced Variance in CMB-cluster Lensing Estimators"
- C.L. Reichardt, S. Patil et al., "An Improved Measurement of the Secondary Cosmic Microwave Background Anisotropies from the SPT-SZ + SPTpol Surveys"
- S. Raghunathan, S. Patil et al., "A Detection of CMB-cluster Lensing Using Polarization Data from SPTpol"
- S. Raghunathan, S. Patil et al., "Mass Calibration of Optically Selected DES clusters using a Measurement of CMB-Cluster Lensing with SPTpol Data"
- S. Raghunathn, S. Patil et al., "Measuring galaxy cluster masses with CMB lensing using a Maximum Likelihood estimator: Statistical and systematic error budgets for future experiments"