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I am a postdoctoral research fellow at the Astrophysics and Cosmology Research Unit (ACRU), School of Mathematics, Statistics and Computer Science, UKZN, Westville. I work broadly on Cosmology and Radio Interferometry. My work involves studying the properties of the relic radiation of Big Bang, namely the Cosmic Microwave Background (CMB) radiation. I completed my PhD from Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India in 2012.

CURRENT RESEARCH

Topic

Weak lensing as a probe for isotropy in the CMB.

Radio interferometry is a hot topic in South Africa with the upcoming large scale project called Square Kilometer Array (SKA).

Methodology

- I use many mathematical and statistical techniques developed by researchers at IUCAA to study the statistical isotropy in the universe through observations of weak lensing distortions of CMB.
- I use radio data to study the certain aspects of the universe, namely polarization patterns of planets.

Application

My work involves a lot of theoretical background in cosmology and computational analysis.

I use standard tools for radio data analysis and imaging.

UKZN main Publications

1. "Oscillations in the inflaton potential: Complete numerical treatment and comparison with the recent and forthcoming CMB datasets", Physical Review D, Vol – 87 Article - 083526, 2013
2. "Lensing modifications to statistical isotropy violating signals" – Submitted
3. "Modeling of Saturn as a CMB polarization calibrator" – In process for publication.

Past Researches

1. "Statistical Isotropy violation of the CMB brightness fluctuations" – PRD, Vol – 81, Article - 083008, 2010.
2. "Primordial features due to a step in the inflaton potential" – JCAP, 1010:008,2010.
3. "WMAP anomaly : Weak lensing in disguise" - arXiv:1111.3357.

Future Interests

1. Research in the field of Cosmology and radio interferometry.
2. Getting involved with international collaborations in these fields.

Extra Interests

Sports (Badminton, Tennis, Squash, Swimming, Kick boxing), Travel, Reading, Photography