

Tony Pinhero

CURRENT AFFILIATION AND CONTACT INFORMATION	Assistant Professor (Contract), Department of Physics Mar Thoma College for Women Perumbavoor 683542 Ernakulam (Dist) Kerala, INDIA	Voice: (+91) 94 97 025994 E-mail: tonypinhero.physics@gmail.com tonypinheiro2222@gmail.com Webpage: https://tonypinhero.weebly.com/
RESEARCH INTERESTS	Cosmology (currently interested in the implications of Supergravity and String theory in the early universe cosmology), Quantum Field Theory, Supersymmetry and Supergravity Theories, String Theory: Particularly interested in String Cosmology (dS vacua and inflation, flux compactifications, etc.) and in String Geometry (Calabi-Yau manifolds, Mirror symmetry, etc.) and Particle Physics.	
EDUCATION	Indian Statistical Institute , Kolkata, West Bengal, INDIA <i>Physics and Applied Mathematics Unit</i> Ph.D., Theoretical Physics (Cosmology), August, 2013 - November 2022 Status of Ph.D.: Defended on 10 October 2023. Provisional degree obtained on 17 October 2023. Thesis submitted (to Calcutta University on 18th November 2022). <ul style="list-style-type: none">• Dissertation Topic: Cosmological Attractor Scenario in Inflation• Supervisor: Dr. Supratik Pal Central University of Kerala , Kasaragod, Kerala, INDIA <i>School of Mathematical and Physical Sciences</i> M.Phil., Physics (Specilization in Condensed Matter Theory), September, 2012 - August, 2013 <ul style="list-style-type: none">• Dissertation Topic: Studies on Superconducting Transmission Lines• Supervisor: Dr. Vincent Mathew Mahatma Gandhi University (Jai Bharath Training College, Ernakulam), Kottayam, Kerala, INDIA B.Ed., Physical Sciences, 2009 - 2010 Mahatma Gandhi University (St. Paul's College, Ernakulam), Kottayam, Kerala, INDIA M.Sc., Physics (Specilization in Electronics), 2005 - 2007 <ul style="list-style-type: none">• Dissertation Topic: Studies on Gaussian Effective Potential at Finite Temperature (A Finite Temperature Field Theory Approach).• Supervisor: Dr. V. J Peter Mahatma Gandhi University (St. Albert's College, Ernakulam), Kottayam, Kerala, INDIA B.Sc., Physics (Specilization in Information Technology), 2002 - 2005 <ul style="list-style-type: none">• Dissertation Topic: Studies on Crystal Growth.• Supervisor: Prof. Lawrel Gregory	
GRANTS, HONORS AND AWARDS	Senior Research Fellowship awarded by the Indian Statistical Institute, 2015 - 2019 Junior Research Fellowship awarded by the Indian Statistical Institute, 2013 - 2015 Qualified Graduate Aptitude Test in Engineering - Physics (GATE), 2013 Student Fellowship awarded by the Central University of Kerala, 2012-2013	

WORK AND
TEACHING
EXPERIENCE

Guest Lecturer in Physics (June, 2022 - Present), Department of Physics, Mar Thoma College for Women, Perumbavoor, Kerala, India.

Guest Lecturer in Physics (November, 2021 - May 2022), Department of Physics, Union Christian College, Aluva, Kerala, India.

Guest Lecturer in Physics (June, 2011 - September 2012), Department of Physics, Maharaja's College, Ernakulam, Kerala, India.

Lecturer in Physics (October, 2010 - June, 2011), Matha College of Technology, N. Parvur, Kerala, India.

Higher Secondary School Teacher in Physics (HSST, 2008 - 2009), St. Joseph's EMHSS, Thrikkakkara, Kerala, India.

COMPUTER SKILLS

Mathematical Packages: Matlab, Mathematica, GNU plot.

Languages: C, C++, Python, Php, L^AT_EX.

Cosmological Codes: CAMB, COSMOMC, SuperCosmology.

Operating Systems: Unix/Linux (Arch Linux, Ubuntu), Windows.

Web Developer: Web developing volunteer (2014 - 2019) of website of Physics and Applied Mathematics Unit, Indian Statistical Institute, Kolkata.

LIST OF
PUBLICATIONS

4. Tony Pinhero and Supratik Pal, *Realising Mutated Hilltop Inflation in Supergravity*, [[arXiv:1905.04737 \[hep-th\]](#)], *Phys. Lett. B* **796** (2019) 220-224.

3. Tony Pinhero, *Natural α -Attractors from $\mathcal{N} = 1$ Supergravity via Flat Kähler Manifolds*, [[arXiv:1812.05406 \[hep-th\]](#)].

2. Tony Pinhero and Supratik Pal, *A New Class of Non-canonical Conformal Attractors for Multi-field Inflation*, [[arXiv:1810.12712 \[hep-th\]](#)], *JCAP* **2003** (2020) no.03, 022

1. Tony Pinhero and Supratik Pal, *Non-canonical Conformal Attractors for Single Field Inflation*, [[arXiv:1703.07165 \[hep-th\]](#)], *Int. J. Mod. Phys. D* **31** (2022) 12, 2250090.

PAPERS IN
PREPARATION

1. Tony Pinhero and Supratik Pal, *Single Chiral Field Mutated Hilltop Inflation*, In preparation, 2023.

2. Tony Pinhero, *Sinflatonless Mutated Hilltop Inflation*, in Preparation, 2024.

3. Tony Pinhero and Supratik Pal, *Isocurvature modes and Non-Gaussianities from α -Attractors in presence of Light Moduli Fields*, In Preparation, 2024.

4. Tony Pinhero, *Geodesics and Extrinsic Curvature of Flat α -attractors*, In Preparation, 2024.

PUBLICATIONS IN
POPULAR ARTICLES

1. Tony Pinhero, *Hide and Seek Game of Quarks*, (Science article in Malayalam language), *Sasthrakeralam*, **555**, January 2017.

CONFERENCE
PRESENTATIONS
AND TALKS

2. *A New Class of Non-canonical Conformal Attractors for Multi-field Inflation*, Poster presentation (Web Conference), 31st Meeting of Indian Association of General Relativity and Gravity (IAGRG2020), 19-20 December 2020, IIT Gandhinagar, Gujarat, India.

1. *Natural α -Attractors from $\mathcal{N} = 1$ Supergravity via Flat Kähler Manifolds*, Contributory talk, International Workshop on Frontiers in High Energy Physics (FHEP 2019), 14 -17 October 2019, IIT Hyderabad, India.

ADMINISTRATIVE
WORKS

Member - Student organizing committee, School on Programming with Python: Applications to Cosmology and Nonlinear Dynamics, ISI Kolkata (March 18 - 23, 2019).

Member - Student organizing committee, Physics and Applied Mathematics Researchers' Meet 2017 (PAMRM'17), ISI Kolkata (March 14 - 16, 2017).

Member - Student organizing committee, 5th Topical Conference on Gravity, Cosmology, Astronomy and Astrophysics – Eastern Region (TCGCA-ER5), ISI Kolkata (Mar 19, 2016).

Member - Student organizing committee, Winter School on Cosmology (WSC15), ISI Kolkata (Dec 28, 2015 - Jan 06, 2016).

Member - Student organizing committee, IUCAA-ISI Workshop on Statistical Applications to Cosmology and Astrophysics (STATCOSMO15), ISI Kolkata (Feb 10 - 13, 2015).

PERSONAL PROFILE *Date of Birth:* 05 June 1985.

Gender: Male.

Marital Status: Single.

Father's Name: Tomy Pinheiro.

Mother's Name: Mary Sherine Pinheiro.

Nationality: Indian.

Language Proficiency: English and Malayalam.

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Vallarpadam P. O,
Kochi-682504,
Ernakulam District,
Kerala, India.

REFERENCES

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