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## Dr. Pramod Kumar Shukla

### Personal Details:

Assistant Professor,  
**Department of Physical Sciences,**  
**Bose Institute**, Unified Academic Campus (UAC),  
EN-80, Sector V, Bidhan Nagar,  
Kolkata - 700 091, West Bengal, India.

**Email:** [pshukla@jcbose.ac.in](mailto:pshukla@jcbose.ac.in)  
**Skype-id:** pramod.shukla83  
**Nationality:** Indian

**Research Area:** Theoretical High Energy Physics (String Theory)

### Academic Details:

- B.Sc. in Physics, Chemistry and Mathematics (2004) from *University of Allahabad*, Prayagraj.
- M.Sc. in Physics (2006) from *Indian Institute of Technology Roorkee* (IIT-R), Roorkee.  
*Title of M.Sc. Thesis:* Super Picard-Fuchs Equations and Monodromies for Supermanifolds.  
*Advisor:* Professor Aalok Misra, Department of Physics, IIT Roorkee, Roorkee.
- Ph.D. in Physics (2011) from *Indian Institute of Technology Roorkee* (IIT-R), Roorkee.  
*Title of Ph.D. Thesis:* Topics in Large Volume Swiss-Cheese Compactification Geometries.  
*Advisor:* Professor Aalok Misra, Department of Physics, IIT Roorkee, Roorkee.

### Other Academic Miscellanea:

- Joint Admission to M.Sc. (JAM-2004), Physics: *All India Rank 180*.
- National Eligibility Test (NET) JRF-CSIR-2005, Physical Sciences; Exam date: 18/12/2005.
- Graduate Aptitude Test (GATE-2005), Physics: *All India Rank:164*, Score: 416, Percentile: 95.40.
- Joint Entrance Screening Test (JEST-2006), Physics: *All India Rank: 118*, Percentile score: 96.09.

### Employments/Affiliations:

#### Faculty positions:

- Assistant Professor, University of Allahabad (UoA), Prayagraj (Aug 2022 - Dec 2022).
- Assistant Professor, Bose Institute (BI), Kolkata (Dec 2022 - ongoing).

#### Postdoc and other positions:

- Postdoc (on Humboldt Fellowship), Max-Planck-Institute for Physics (MPP), Munich (2011-2013).
- Postdoc, University of Torino (UniTO), Turin (2013-2015).
- Postdoc, International Centre for Theoretical Physics (ICTP), Trieste (2015-2017).
- Postdoc, Institute for Theoretical Physics (IFT) UAM-CSIC, Madrid (2017-2018).
- Visiting Scientist, International Centre for Theoretical Physics (ICTP), Trieste (2018-2019).

#### Additional affiliations and (partial) supports:

- Visiting Scientist (in a temporary capacity), International Centre for Theoretical Physics (ICTP), Trieste (2021-2022).
- Visitor, Italian '*National Institute for Nuclear Physics*' (INFN), Section of Bologna in 2016 and 2017.
- Associate member, INFN, Section of Torino (2013-2015).

**Awards, Fellowships and Grants:**

- *Postdoctoral Research Fellowship*, IFT (UAM-CSIC)-Madrid (2017-2018). This fellowship was partially supported by the European Research Council (ERC) under the programme “String Phenomenology in the LHC Era (SPLE)”; Mentor: Professor Luis Ibanez.
- *Postdoctoral Research Fellowship* under ‘Research at the Director’s office’, ICTP Trieste (2015-2017); Mentor: Professor Fernando Quevedo.
- *Postdoctoral Research Fellowship*, University of Turin (2013-2015). This fellowship was partially supported by the Compagnia di San Paolo contract “Modern Application of String Theory (MAST)” TO-Call3-2012-0088; Mentor: Professor Marialuisa Frau, UniTo & INFN-Turin, Turin.
- *The Alexander von Humboldt Fellowship* for junior postdoc researchers, Germany: (2011-2013); Mentor: Professor Dieter Lüst, Max-Planck-Institute for Physics (MPP), Munich.
- *Senior Research Fellowship* (2008-2011) and *Junior Research Fellowship* (2006-2008), Council of Scientific and Industrial Research (CSIR), India; PhD Thesis Advisor: Professor Aalok Misra, IIT Roorkee.

**Topics of Research Interest:**

- My research work has been mainly focused towards attempts for realistic model building in String Cosmology and Phenomenology. Some specific topics of my research interests include Moduli Stabilization and de-Sitter (no-go) Scenarios, Issues on Swampland Conjectures, (Non-)geometric Flux Compactifications, Effective action computations, Explicit constructions of CY orientifolds, KKLТ and (Perturbative) LARGE Volume Scenarios, (Post-)Inflationary Scenarios and their Global Embeddings, Intersecting Brane-Models, SUSY Breaking and Soft parameters/masses.
- Number of research publications: 45 (published/Accepted) + 2 (under review) ([INSPIRE-HEP-link](#)).

**Supervision:**

- Student Internship:
  1. Ms. Swagata Bera, Five Year Integrated MSc in Physics, ISERC, Visva Bharati University; Project Title: Application of Finite Groups in Solid State Physics  
Duration: May 15 - July 08, 2023.
  2. Ms. Subhra Khan, MSc in Physics, Savitribai Phule Pune University; Project Title: Group Theory and Its Application  
Duration: June 09 - August 28, 2023.
- Master Thesis:
  1. Ms. Swagata Bera, Five Year Integrated MSc in Physics, ISERC, Visva Bharati University; Thesis Title: Aspects of Fibre inflation in LVS  
Duration: September 2023 - May 2024.

**Teaching:**

- Pre-PhD course: Mathematical Methods (B.28) at Bose Institute during April - August 2023.

**Other Professional Activities:**

- One of the organizers of the *Faculty Seminar Series* at Bose Institute, since March 2023.
- One of the organizers for the international conference “**Post-inflationary string cosmology**” held during September 18-21, 2017 at the DIFA, University of Bologna and INFN-Bologna, Bologna.
- Currently I am referee for the ‘Journal of High Energy Physics’ (JHEP), ‘Nuclear Physics B’ (NPB), and the ‘Modern Physics Letters A’ (MPLA).

**Other Recognitions/Certificates:**

- Recipient of the "Seal of Excellence" certificate for the research proposal titled "Global Embedding of Open-string moduli based Models" submitted to Marie Skłodowska-Curie Actions (H2020-MSCA-IF-2016), under Horizon 2020: the EU Framework Programme for Research and Innovation 2014-2020, European Commission; April 24, 2017.
- Scored 96% for a research proposal submitted for the Marie Skłodowska-Curie Actions (MSCA) - COFUND fellowship programme under "Intertalentum-2018" at the University of Madrid, Madrid.
- Scored above 85% for the research proposals submitted for the Marie-Curie Individual Fellowship (IF), Horizon 2020, European Commission; (three times) in 2012, 2014 and 2016.

**Memberships/Associateships:**

- Istituto Nazionale di Fisica Nucleare ([INFN](#))-Torino: Associateship (2013-2015)
- Indian Physics Association ([IPA](#)): Life Member
- Indian Science Congress Association ([ISCA](#)): Life Member
- Indian Association for General Relativity and Gravitation ([IAGRG](#)): Life Member

**Administrative Activities:**

- Vice-President (2006-2007): Physics Association, IIT-Roorkee, Roorkee.
- President (2007-2008): Physics Association, IIT-Roorkee, Roorkee.

**Knowledge of Computational Tools and Software Packages:**

- Package for Analyzing Lattice Polytopes: ([PALP](#))
- System for Algebra and Geometry Experimentation: ([SAGE](#))
- Cohomology Computation of Algebraic Varieties: ([cohomCalc](#))
- Calabi Yau Tools Package: ([CYTools](#))

*Remark:* Using the software packages, like *PALP*, *SAGE* and *cohomCalc* and *CYTools*, we perform a detailed scan for the Calabi-Yau threefolds with "suitable" divisor topology useful for model building in string phenomenology. This scan helps us in analyzing the cohomology of curves and surfaces inside the Calabi-Yau threefold embedded in the toric varieties, and subsequently, in classifying them based on some phenomenologically inspired topological properties. This can also be utilized for *multi-disciplinary* aspects.

**Seminars/talks/lectures & participation in Schools/conferences/workshops/(invited)visits:**

I have made more than 50 visits in the form of participations in various schools/conferences/workshops, along with some additional (invited) visits, and have delivered more than 45 seminars/talks at various occasions.

**(A). List of Seminars/talks/lectures delivered at various institutions:**

I have delivered more than 45 talks at various occasions in the form of seminars and lectures with the following details:

1. "*A toolkit for global model building in string phenomenology*" on Dec. 10, 2023 during Indian String Meeting (ISM) - 2023 at IIT Bombay, Mumbai. **(upcoming)**
2. "*On seeking a unified framework to understand the real world*" on July 14, 2023 as part of the Faculty Seminar Series at UAC, Bose Institute, Kolkata.
3. "*Insights of (Global) String Model Building: Presumptions, Expectations and Reality*" (a zoom seminar) on March 08, 2022 at **Seminar Series on String Phenomenology**.  
(Youtube Link: <https://www.youtube.com/watch?v=nDJy7QnNAZ8>)
4. "*String Phenomenology with Swiss-Cheese*" (a zoom seminar) on Nov. 18, 2021 at IISER-Berhampur.
5. "*Status of String Model Building*" (a zoom seminar) on July 26, 2021 at Bennett-University, India.
6. "*Towards LVS inflation beyond swiss-cheese*" (a zoom seminar) on June 11, 2021 at HRI-Prayagraj.
7. "*String Cosmology and Swiss-Cheese*" (a zoom seminar) on May 26, 2021 at NISER-Bhubaneswar.
8. "*Swiss-Cheese LVS Cosmology*" (a colloquium through zoom) on April 09, 2021 at HRI-Prayagraj.
9. "*Swiss-Cheese String Cosmology and Beyond*" on March 09, 2021 at IISER-Mohali, Mohali.
10. "*Attempts for realistic model building in string cosmology*" on Jan. 09, 2020 at IIT(ISM)-Dhanbad.
11. "*Attempts for realistic model building in string cosmology*" on July 21, 2019 at IISER-Berhampur.
12. "*LVS flat directions and inflaton field range*" on July 04, 2018 during String Pheno-2018, Warsaw.
13. "*New challenges for large field inflation in string cosmology*" on May 21, 2018 at Tor Vergata, Rome.
14. "*A symplectic formulation of Non-geometric type IIA scalar potential*" on Feb 13, 2018, IFT-Madrid
15. **A series of two talks** titled: "*On chiral global embedding of Fibre inflation models*" on Dec. 05, 2017; "*On global embedding of Fibre inflation models*" on Nov. 22, 2017 at IFT, UAM/CSIC, Madrid, Spain.
16. "*Inflation in LARGE volume scenarios*" on July 13, 2017 at IISER-Pune, Pune, India.
17. "*Towards Realistic Model Building in String Cosmology*" on July 3, 2017 at IIT-Madras, India.
18. "*Model Building in String Cosmology*" on April 19, 2017 at IIT-Bombay, Mumbai, India.
19. "*Explicit global constructions for Fibre inflation models*" on December 8, 2016 at ICTP-Trieste, Italy.
20. "*On explicit Calabi Yau orientifold constructions for Fibre inflation*", Nov. 22, 2016, INFN-Torino.
21. "*Towards global embedding of Fibre inflation:(with the inclusion of higher-derivative  $\alpha'$ -corrections)*" during String Pheno-2016 on June 23, 2016 at University of Ioannina, Ioannina, Greece.
22. "*Some attempts of inflationary model building in string cosmology*" on April 26, 2016 at Dept. of Physics & Astronomy, Bologna University, Bologna, Italy.
23. "*Towards dimensional oxidation of four-dimensional non-geometric type IIB action*" during String Pheno-2015 on June 11, 2015 at Institute of Theoretical Physics, UAM/CSIC, Madrid, Spain.
24. "*On constraining stringy parameters with the (experimental) bounds of cosmological observables*" on February 05, 2015 at Department of Physics & Astronomy, Bologna University, Italy.
25. **A set of two lectures:** "*Inflationary model building in string cosmology: A limited overview: I and II*" on January 20, 2015 and Nov. 14, 2014 at the Dept. of Physics, Turin University, Torino, Italy.

26. "Towards Natural Inflation in LARGE Volume Scenarios" on August 19, 2014 at IISER-Mohali, India.
27. "A Tale of Two Axions" on August 13, 2014 at Department of Physics, IIT-Bombay, Mumbai, India.
28. "Combining Universal and Odd RR Axions for Aligned Natural Inflation" on July 08, 2014 during String Pheno-2014 at ICTP Trieste, Italy.
29. "Updates on large volume inflationary models after BICEP2", June 10, 2014 at Bologna Univ., Bologna.
30. "Large volume string cosmology before and after BICEP2", April 29, 2014 at Univ. of Warsaw, Warsaw.
31. "On Implementing odd moduli in LARGE volume scenarios" on Oct. 22, 2013 at INFN-Torino, Turin.
32. "Explicit Constructions of Type IIB Calabi Yau Orientifolds and Moduli Stabilization Schemes" on July 17, 2013 during String Pheno-2013 at DESY Hamburg, Germany.
33. "Moduli Stabilization and Cosmology With Poly-Instanton Corrections" on May 22, 2013 during PLANCK-2013 at Bethe Center for Theoretical Physics, Bonn, Germany.
34. "(A Few) Attempts in Axion Model Building" on January 9, 2013 at MPI for Physics, Munich.
35. "On String Inspired Inflationary Cosmology" on November 29, 2012 at Network Meeting of the Alexander von Humboldt Foundation in Karlsruhe, Germany.
36. "A New Class of Kähler Moduli Inflation in LARGE Volume Scenarios" on October 29, 2012 during SCGSC-2012 at Institut Henri Poincaré (IHP), Paris, France.
37. "Cosmological Implications of Poly-Instanton Corrections" on Oct. 26, 2012 at IPhT-Saclay, Paris.
38. "Inflationary Models in Large Volume Scenarios" on Dec. 14, 2011 at MPI for Physics, Munich.
39. "Zero/finite temperature implications of D3/D7 swiss-cheese cosmology" on January 21, 2011 during IAGR-26 at HRI, Allahabad, India.
40. "Finite Temperature Corrections in D3/D7 LVS Swiss-Cheese Compactification" on August 5, 2010 during International School on Strings and Fundamental Physics at Garching/Munich, Germany.
41. "Cosmo-pheno implications of LVS swiss-cheese compactification" on July 20, 2010, IPhT-Saclay, Paris.
42. "A Few Aspects of D3/D7 Swiss-Cheese Phenomenology" on March 29, 2010 at ICTP, Trieste.
43. "Swiss-cheese phenomenology in LVS" on Feb. 13, 2010 during NSM-2010 at IIT Bombay, Mumbai.
44. "Large Volume Compactification Scenarios" on April 3, 2009, Tor Vergata, Univ. of Rome, Rome.
45. "Swiss-Cheese Compactifications in Large Volume Scenarios" on March 30, 2009 at ICTP, Trieste.

**(B). Schools/conferences participated-in AND visits made to various institutions:**

I have made more than 50 visits in the form of participations in various schools, conferences and workshops, along with some additional visits for local interactions and giving (invited) talks. Those are mentioned as under:

1. "String Phenomenology SP-2021" during July 12-16, 2021 at Northeastern Univ. (virtual)
2. "Strings-2021" during June 21 - July 02, 2021 at ICTP-Saifr, São-Paulo (virtual)
3. Visit and Seminar at IISER-Mohali during Mar 08-10, 2021.
4. Visit and Seminar at IIT(ISM)-Dhanbad during Jan 08-10, 2020.
5. Visit and Seminar at IISER-Berhampur during July 21-22, 2019.
6. "Vistas over the Swampland" during Sept 19-21, 2018 at IFT UAM-CSIC, Madrid.
7. "String Phenomenology SP-2018" during July 02-06, 2018 at Univ. of Warsaw, Warsaw.
8. Visit and Invited Talk at Univ. of Rome II, Tor Vergata during May 21-23, 2018.

9. "Physics and Geometry of F-theory" during Mar 05-08, 2018 at IFT/UAM, Madrid.
10. "Post-Inflationary String Cosmology", Sept 18-21, 2017 at Univ. of Bologna & INFN-Bologna.
11. "Theories of the Fundamental Interactions" during Sept 11-23, 2017 at INFN-Parma.
12. Visit and Seminar at IISER-Pune during July 12-14, 2017.
13. Visit and Seminar at IIT-Madras during July 02-05, 2017.
14. Visit and Seminar at IIT-Bombay during Apr 19-20, 2017.
15. "Physics and Geometry of F-theory" during Feb27-Mar02, 2017 at ICTP-Trieste
16. "New Ideas in String Phenomenology" during Feb 14-17, 2017 at DESY-Hamburg.
17. Visit and Invited Talk at INFN-Turin during Nov 22-23, 2016.
18. "String Phenomenology (SP-2016)" during Jun 20-24, 2016 at Univ. of Ioannina, Ioannina.
19. "Workshops on Topics in Three Dimensional Gravity" during Mar 21-24, 2016 at ICTP-Trieste.
20. "Spring School on Superstring & Related Topics 2016 " during Mar 10-18, 2016 at ICTP-Trieste.
21. Visit and Invited Talk at DIFA & INFN-Bologna during Feb 09-14, 2016
22. "String Phenomenology (SP-2015)" during Jun 08-12, 2015 at IFT/UAM, Madrid.
23. Visit and Invited Talk at DIFA & INFN-Bologna during Feb 05-06, 2015.
24. "10<sup>th</sup> Joint ERC Seminar Series Superfields on Sept 29, 2014 at INFN-Turin.
25. Visit and Seminar at IISER-Mohali during Aug 19-20, 2014.
26. Visit and Seminar at IIT-Bombay during Aug 13, 2014.
27. "String Phenomenology (SP-2014)" during Jul 07-11, 2014 at ICTP-Trieste.
28. Visit and Invited Talk DIFA & INFN-Bologna during Jun 09-10, 2014.
29. Visit and Seminar at Univ. of Warsaw during Apr 25-27, 2014.
30. "Spring School on String Theory" during Apr 25-27, 2014 at University of Warsaw, Warsaw.
31. "String Phenomenology (SP)-2013)" during Jul 15-19, 2013 at DESY-Hamburg.
32. "PLANCK-2013 " during May 20-24, 2013 at BCTP-Bonn.
33. "Alexander von Humboldt Network Meeting" during Nov 28-30, 2012 at Karlsruhe.
34. "Geometry and Physics" during Nov 19-23, 2012 at MPP-Munich.
35. "Strings, Cosmology & Gravity Student Conference (SCGSC-2012)", Oct 29-31, 2012 at IHP-Paris.
36. Visit and Seminar at CEA-Saclay, Paris, on Oct 26, 2012.
37. "New Challenges for String Phenomenology" during Sep 26-28, 2012 at IFT-UAM, Madrid.
38. "New Methods for Field Theory Amplitudes" during Sep 10-14, 2012 at LMU-Munich.
39. "Recent Developments in String and Field Theory" during Aug 27-31, 2012 at Berlin.
40. "Strings-2012" during Jul 23-28, 2012 at LMU-Munich.
41. "3rd O'Raifeartaigh Conference on Symmetry & Integrability" during Jul 19-21, 2012 at LMU-Munich.
42. "Alexander von Humboldt Annual Meeting" during Jun 19-21, 2012 at Berlin.
43. "New perspectives on supersymmetric gauge theories" during Feb 27 - Mar 02, 2012 at LMU-Munich.
44. "Algebraic Geometry for String Theorists" during Oct 10-14, 2011 at LMU-Munich.
45. "IAGRG-26, Sangam: Confluence of Gravitation & Cosmology" during Jan 19-21, 2011 at HRI-Prayagraj.
46. "Indian String Meeting ISM-2011" during Jan 04-11, 2011 at Puri.

47. "International School on Strings & Fundamental Physics", July 25 - Aug 06, 2010 at TUM-Munich.
48. *Visit and Seminar* at CEA-Saclay, Paris during July 12-24, 2010.
49. "Spring School on Superstring & Related Topics 2010" during Mar 21-30, 2010 at ICTP-Trieste.
50. "National String Meeting NSM-2010" during Feb 10-15, 2010 at IIT-Bombay, Mumbai.
51. Visit and Seminar at Univ. of Rome II, Tor Vergata during Apr 01-03, 2009.
52. "Spring School on Superstring & Related Topics 2009" during Mar 22-31, 2009 at ICTP-Trieste.
53. "Indian String Meeting (ISM-2008)" during Dec 06-13, 2008 at Pondicherry.
54. "XXIII SERC Main School-2008" during Feb 06-26, 2008 at IIT-Bombay, Mumbai.
55. "National String Workshop (NSW-2007)" during Oct 15-19, 2007 at HRI-Prayagraj.
56. "Advanced String School (ASS-2007)" during Oct 08-14, 2007 at IOP-Bhubaneswar.
57. "International Workshop in THEP (IWTHEP-2007)" during Mar 15-20, 2007 at IIT-Roorkee.
58. "XXII SERC Main School-2007" during Jan18-Feb07, 2007 at HCU-Hyderabad.
59. "Indian String Meeting (ISM-2006)" during Dec 12-19, 2006 at Puri.
60. "Workshop in THEP (WTHEP-2005)" during Mar 16-20, 2005 at IIT-Roorkee.

### List of Publications and under review communications:

The details of my research publications are summarized as under:

**Total # of arXiv e-prints: 49**

Recent under-review/arXiv e-prints: 2

Published/Accepted: 45

#### 2023

- 1. Authors:** G. K. Leontaris and P. Shukla  
**Title:** *Symplectic formulation of the type IIB scalar potential with U-dual fluxes*  
**Journal Ref.:** Under review in Physical Review D (PRD)  
**arXiv:** 2309.08664 [hep-th]
- 2. Authors:** M. Cicoli, M. Licheri, P. Piantadosi, F. Quevedo, and P. Shukla  
**Title:** *Higher Derivative Corrections to String Inflation*  
**Journal Ref.:** Under review in Journal of High Energy Physics (JHEP)  
**arXiv:** 2309.11697 [hep-th]
- 3. Authors:** G. K. Leontaris and P. Shukla  
**Title:** *Taxonomy of scalar potential with U-dual fluxes*  
**Journal Ref.:** Accepted for publication in Physical Review D (PRD)  
**Date of Acceptance:** 03 December 2023  
**arXiv:** 2308.15529 [hep-th]
- 4. Authors:** G. K. Leontaris and P. Shukla  
**Title:** *Seeking de-Sitter Vacua in the String Landscape*  
**Journal Ref.:** [Proceedings of Science: PoS\(CORFU2022\)058](#)  
**DOI:** [10.22323/1.436.0058](#)  
**Date of publication:** 08 November 2023
- 5. Authors:** S. AbdusSalam, C. Crinò and P. Shukla  
**Title:** *On K3-fibred LARGE Volume Scenario with de Sitter vacua from anti-D3-branes*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 03, 132 \(2023\)](#)  
**DOI:** [10.1007/JHEP03\(2023\)132](#)  
**Date of publication:** 17 March 2023
- 6. Authors:** P. Shukla  
**Title:** *On stable type IIA de-Sitter vacua with geometric flux*  
**Journal Ref.:** [European Physical Journal C \(EPJC\) 83, 196 \(2023\)](#)  
**DOI:** [10.1140/epjc/s10052-023-11361-w](#)  
**Date of publication:** 06 March 2023

#### 2022

- 7. Authors:** P. Shukla  
**Title:** *Classifying divisor topologies for string phenomenology*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 12, 055 \(2022\)](#)  
**DOI:** [10.1007/JHEP12\(2022\)055](#)  
**Date of publication:** 09 December 2022



8. **Authors:** F. Carta, A. Mininno and P. Shukla  
**Title:** *Systematics of perturbatively flat flux vacua for CICYs*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 08, 297 \(2022\)](#)  
**DOI:** [10.1007/JHEP08\(2022\)297](#)  
**Date of publication:** 30 August 2022
9. **Authors:** G. K. Leontaris and P. Shukla  
**Title:** *Stabilising all Kähler moduli in perturbative LVS*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 07, 047 \(2022\)](#)  
**DOI:** [10.1007/JHEP07\(2022\)047](#)  
**Date of publication:** 08 July 2022
10. **Authors:** F. Carta, A. Mininno and P. Shukla  
**Title:** *Divisor topologies of CICY 3-folds and their applications to phenomenology*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 05, 101 \(2022\)](#)  
**DOI:** [10.1007/JHEP05\(2022\)101](#)  
**Date of publication:** 16 May 2022
11. **Authors:** M. Cicoli, A. Schachner and P. Shukla  
**Title:** *Systematics of type IIB moduli stabilisation with odd axions*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 04, 003 \(2022\)](#)  
**DOI:** [10.1007/JHEP04\(2022\)003](#)  
**Date of publication:** 01 April 2022
12. **Authors:** F. Carta, A. Mininno and P. Shukla  
**Title:** *Systematics of perturbatively flat flux vacua*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 02, 205 \(2022\)](#)  
**DOI:** [10.1007/JHEP02\(2022\)205](#)  
**Date of publication:** 28 February 2022

## 2021

13. **Authors:** M. Cicoli, I. Garcia-Etxebarria, F. Quevedo, A. Schachner, P. Shukla and R. Valandro  
**Title:** *The Standard Model Quiver in de Sitter String Compactifications*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 08, 109 \(2021\)](#)  
**DOI:** [10.1007/JHEP08\(2021\)109](#)  
**Date of publication:** 23 August 2021
14. **Author:** P. Shukla  
**Title:** *Rigid nongeometric orientifolds and the swampland*  
**Journal Ref.:** [Physical Review D \(PRD\) 103, 086010 \(2021\)](#)  
**DOI:** [10.1103/PhysRevD.103.086010](#)  
**Date of publication:** 15 April 2021
15. **Author:** P. Shukla  
**Title:** *Dictionary for the type II nongeometric flux compactifications*  
**Journal Ref.:** [Physical Review D \(PRD\) 103, 086009 \(2021\)](#)  
**DOI:** [10.1103/PhysRevD.103.086009](#)  
**Date of publication:** 15 April 2021

**2020**

16. **Authors:** F. Marchesano, D. Prieto, J. Quirant and P. Shukla  
**Title:** *Systematics of Type IIA moduli stabilisation*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 113 \(2020\)](#)  
**DOI:** [10.1007/JHEP11\(2020\)113](#)  
**Date of publication:** 20 November 2020
17. **Authors:** S. AbdusSalam, S. Abel, M. Cicoli, F. Quevedo and P. Shukla  
**Title:** *A Systematic Approach to Kähler Moduli Stabilisation*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 08, 047 \(2020\)](#)  
**DOI:** [10.1007/JHEP08\(2020\)047](#)  
**Date of publication:** 11 August 2020
18. **Author:** P. Shukla  
**Title:** *T-dualizing de Sitter no-go scenarios*  
**Journal Ref.:** [Physical Review D \(PRD\) 102, 026014 \(2020\)](#)  
**DOI:** [10.1103/PhysRevD.102.026014](#)  
**Date of publication:** 14 July 2020

**2019**

19. **Authors:** X. Gao, P. Shukla and R. Sun  
**Title:** *On Missing Bianchi Identities in Cohomology Formulation*  
**Journal Ref.:** [European Physical Journal C \(EPJC\) 79 \(9\), 781 \(2019\)](#)  
**DOI:** [10.1140/epjc/s10052-019-7291-5](#)  
**Date of publication:** 21 September 2019

**2018**

20. **Authors:** X. Gao, P. Shukla and R. Sun  
**Title:** *Symplectic formulation of the type IIA nongeometric scalar potential*  
**Journal Ref.:** [Physical Review D \(PRD\) 98, 046009 \(2018\)](#)  
**DOI:** [10.1103/PhysRevD.98.046009](#)  
**Date of publication:** 13 August 2018
21. **Authors:** M. Cicoli, D. Ciupke, C. Mayrhofer and P. Shukla  
**Title:** *A Geometrical Upper Bound on the Inflaton Range*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 05, 001 \(2018\)](#)  
**DOI:** [10.1007/JHEP05\(2018\)001](#)  
**Date of publication:** 02 May 2018

**2017**

22. **Authors:** M. Cicoli, D. Ciupke, V. A. Diaz, V. Guidetti, F. Muia and P. Shukla  
**Title:** *Chiral Global Embedding of Fibre Inflation Models*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 207 \(2017\)](#)  
**DOI:** [10.1007/JHEP11\(2017\)207](#)  
**Date of publication:** 30 November 2017

23. **Authors:** M. Cicoli, I. Garcia-Etxebarria, C. Mayrhofer, F. Quevedo, P. Shukla and R. Valandro  
**Title:** *Global Orientifolded Quivers with Inflation*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 134 \(2017\)](#)  
**DOI:** [10.1007/JHEP11\(2017\)134](#)  
**Date of publication:** 21 November 2017

## 2016

24. **Authors:** M. Cicoli, F. Muia and P. Shukla  
**Title:** *Global embedding of Fibre inflation models*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 182 \(2016\)](#)  
**DOI:** [10.1007/JHEP11\(2016\)182](#)  
**Date of publication:** 30 November 2016
25. **Author:** P. Shukla  
**Title:** *Reading off the nongeometric scalar potentials via the topological data of the Calabi-Yau manifolds*  
**Journal Ref.:** [Physical Review D \(PRD\) 94, 086003 \(2016\)](#)  
**DOI:** [10.1103/PhysRevD.94.086003](#)  
**Date of publication:** 10 October 2016
26. **Author:** P. Shukla  
**Title:** *Revisiting the two formulations of Bianchi identities and their implications on moduli stabilization*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 08, 146 \(2016\)](#)  
**DOI:** [10.1007/JHEP08\(2016\)146](#)  
**Date of publication:** 24 August 2016
27. **Author:** P. Shukla  
**Title:** *Implementing odd-axions in dimensional oxidation of non-geometric type IIB action*  
**Journal Ref.:** [Nuclear Physics B \(NPB\) 902, 458-482 \(2016\)](#)  
**DOI:** [10.1016/j.nuclphysb.2015.11.020](#)  
**Date of publication:** 26 November 2015 (online)

## 2015

28. **Author:** P. Shukla  
**Title:** *A symplectic rearrangement of the four dimensional non-geometric scalar potential*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 162 \(2015\)](#)  
**DOI:** [10.1007/JHEP11\(2015\)162](#)  
**Date of publication:** 24 November 2015
29. **Author:** P. Shukla  
**Title:** *On modular completion of generalized flux orbits*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 075 \(2015\)](#)  
**DOI:** [10.1007/JHEP11\(2015\)075](#)  
**Date of publication:** 12 November 2015
30. **Authors:** X. Gao and P. Shukla  
**Title:** *Dimensional oxidation and modular completion of non-geometric type IIB action*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 05, 018 \(2015\)](#)  
**DOI:** [10.1007/JHEP05\(2015\)018](#)  
**Date of publication:** 05 May 2015

**2014**

31. **Authors:** A. Mazumdar and P. Shukla  
**Title:** *Some inequalities bridging stringy parameters and cosmological observables*  
**DOI:** <https://doi.org/10.48550/arXiv.1411.4636>  
**arXiv:** [1411.4636](https://arxiv.org/abs/1411.4636) [hep-th]
32. **Authors:** X. Gao, T. Li and P. Shukla  
**Title:** *Fractional chaotic inflation in the lights of PLANCK and BICEP2*  
**Journal Ref.:** [Physics Letters B \(PLB\) 738, 412-417 \(2014\)](#)  
**DOI:** [10.1016/j.physletb.2014.10.007](https://doi.org/10.1016/j.physletb.2014.10.007)  
**Date of publication:** 10 November 2014
33. **Authors:** X. Gao, T. Li and P. Shukla  
**Title:** *Combining Universal and Odd RR Axions for Aligned Natural Inflation*  
**Journal Ref.:** [Journal of Cosmology and Astroparticle Physics \(JCAP\) 10, 048 \(2014\)](#)  
**DOI:** [10.1088/1475-7516/2014/10/048](https://doi.org/10.1088/1475-7516/2014/10/048)  
**Date of publication:** 20 October 2014
34. **Authors:** X. Gao, T. Li and P. Shukla  
**Title:** *Cosmological observables in multi-field inflation with a non-flat field space*  
**Journal Ref.:** [Journal of Cosmology and Astroparticle Physics \(JCAP\) 10, 008 \(2014\)](#)  
**DOI:** [10.1088/1475-7516/2014/10/008](https://doi.org/10.1088/1475-7516/2014/10/008)  
**Date of publication:** 6 October 2014
35. **Authors:** X. Gao and P. Shukla  
**Title:** *F-term Stabilization of Odd Axions in LARGE Volume Scenario*  
**Journal Ref.:** [Nuclear Physics B \(NPB\) 878, 269-294 \(2014\)](#)  
**DOI:** [10.1016/j.nuclphysb.2013.11.015](https://doi.org/10.1016/j.nuclphysb.2013.11.015)  
**Date of publication:** 28 November 2013 (online)

**2013**

36. **Authors:** X. Gao and P. Shukla  
**Title:** *On Classifying the Divisor Involutions in Calabi-Yau Threefolds*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 170 \(2013\)](#)  
**DOI:** [10.1007/JHEP11\(2013\)170](https://doi.org/10.1007/JHEP11(2013)170)  
**Date of publication:** 22 November 2013
37. **Authors:** R. Blumenhagen, X. Gao, D. Herschmann and P. Shukla  
**Title:** *Dimensional Oxidation of Non-geometric Fluxes in Type II Orientifolds*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 10, 201 \(2013\)](#)  
**DOI:** [10.1007/JHEP10\(2013\)201](https://doi.org/10.1007/JHEP10(2013)201)  
**Date of publication:** 29 October 2013
38. **Authors:** X. Gao and P. Shukla  
**Title:** *On Non-Gaussianities in Two-Field Poly-Instanton Inflation*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 03, 061 \(2013\)](#)  
**DOI:** [10.1007/JHEP03\(2013\)061](https://doi.org/10.1007/JHEP03(2013)061)  
**Date of publication:** 11 March 2013

**2012**

39. **Authors:** R. Blumenhagen, X. Gao, T. Rahn and P. Shukla  
**Title:** *Moduli Stabilization and Inflationary Cosmology with Poly-Instantons in Type IIB Orientifolds*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 11, 101 \(2012\)](#)  
**DOI:** [10.1007/JHEP11\(2012\)101](#)  
**Date of publication:** 19 November 2012
40. **Authors:** R. Blumenhagen, X. Gao, T. Rahn and P. Shukla  
**Title:** *A Note on Poly-Instanton Effects in Type IIB Orientifolds on Calabi-Yau Threefolds*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 06, 162 \(2012\)](#)  
**DOI:** [10.1007/JHEP06\(2012\)162](#)  
**Date of publication:** 27 June 2012

**2011**

41. **Author:** P. Shukla  
**Title:** *Topics In Large Volume Swiss-Cheese Compactification Geometries*  
**DOI:** <https://doi.org/10.48550/arXiv.1105.0365>  
**arXiv:** [1105.0365 \[hep-th\]](#)  
**Note:** Review article based on PhD Thesis
42. **Authors:** A. Misra and P. Shukla  
**Title:** *On 'light' fermions and proton stability in 'big divisor' D3/D7 large volume compactifications*  
**Journal Ref.:** [Eur. Phys. Journal C \(EPJC\) 71, 1662, \(2011\)](#)  
**DOI:** [10.1140/epjc/s10052-011-1662-x](#)  
**Date of publication:** 01 June 2011
43. **Author:** P. Shukla  
**Title:** *Moduli thermalization and finite temperature effects in "big" divisor large volume D3/D7 Swiss-cheese compactification*  
**Journal Ref.:** [Journal of High Energy Physics \(JHEP\) 01, 088 \(2011\)](#)  
**DOI:** [10.1007/JHEP01\(2011\)088](#)  
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**2010**

44. **Authors:** A. Misra and P. Shukla  
**Title:** *Soft SUSY breaking parameters and RG running of squark and slepton masses in large volume Swiss Cheese compactifications*  
**Journal Ref.:** [Physics Letters B \(PLB\) 685, 347-352 \(2010\)](#)  
**DOI:** [10.1016/j.physletb.2010.02.011](#)  
**Date of publication:** 08 March 2010
45. **Authors:** A. Misra and P. Shukla  
**Title:** *Swiss Cheese D3-D7 Soft SUSY Breaking*  
**Journal Ref.:** [Nuclear Physics B \(NPB\) 827, 112-182 \(2010\)](#)  
**DOI:** [10.1016/j.nuclphysb.2009.10.023](#)  
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**2009**

46. **Authors:** A. Misra and P. Shukla  
**Title:** *"Finite" Non-Gaussianities and Tensor-scalar ratio in the Large Volume Swiss-Cheese Compactifications*  
**Journal Ref.:** Nuclear Physics B (NPB) 810, 174-192 (2009)  
**DOI:** [10.1016/j.nuclphysb.2008.10.022](https://doi.org/10.1016/j.nuclphysb.2008.10.022)  
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**2008**

47. **Authors:** A. Misra and P. Shukla  
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**Journal Ref.:** Nuclear Physics B (NPB) 800, 384-400 (2008)  
**DOI:** [10.1016/j.nuclphysb.2008.04.001](https://doi.org/10.1016/j.nuclphysb.2008.04.001)  
**Date of publication:** 01 September 2008
48. **Authors:** A. Misra and P. Shukla  
**Title:** *Moduli Stabilization, Large-Volume  $dS$  Minimum Without anti- $D3$ -Branes, (Non-)Supersymmetric Black Hole Attractors and Two-Parameter Swiss Cheese Calabi-Yau's*  
**Journal Ref.:** Nuclear Physics B (NPB) 799, 165-198 (2008)  
**DOI:** [10.1016/j.nuclphysb.2008.03.001](https://doi.org/10.1016/j.nuclphysb.2008.03.001)  
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**2007**

49. **Authors:** P. Kaura, A. Misra and P. Shukla  
**Title:** *Super Picard-Fuchs Equations and Monodromies for Supermanifolds*  
**Journal Ref.:** Journal of Mathematical Physics (JMP) 48, 022306 (2007)  
**DOI:** [10.1063/1.2426418](https://doi.org/10.1063/1.2426418)  
**Date of publication:** 28 February 2007