Academic CV: Benjamin Percival

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Current Position

Research Associate in String Phenomenology group at University of Liverpool.

Areas of Specialism

String theory from a worldsheet perspective, Cosmological Constant problem, SUSY Breaking, CFTs, Asymmetric Orbifolds, ML and SAT/SMT Solvers in String model building.

Education

MSci Natural Sciences, Durham University, Durham UK- 1st Class Honours.

Work experience

- March 2022 - present: Research Associate and Lecturer, University of Liverpool
- Oct. 2021-Feb. 2022: Brilliant Club Scholars Programme tutor
- 2021: FLTHE Stage 2 Teaching Qualification
- Oct. 2017-March 2022: PhD researcher, University of Liverpool
- September 2016 - July 2017: Full-time Science and Maths tutor for pre-university students at Kaplan International College London Bridge.
- June - September 2015: CERN Summer Student undertaking a research project in accelerator beam dynamics.

Computer Skills

Linux, Python, Mathematica, LaTex, Git, SATs/SMT Solvers and Neural Nets.

Free Time

Organiser of political education events, cricket and chess player.

Languages

- English: native
- Italian: basic

Referees

- Prof. Alon E. Faraggi, faraggi@liverpool.ac.uk
- Prof. Ioannis Rizos, irizos@uoi.gr
- Dr. Stefan Groot Nibbelink, s.groot.nibbelink@hr.nl
- Prof. Sven Schewe, svens@liverpool.ac.uk

Publications

1. A. E. Faraggi, G. Harries, B. Percival and J. Rizos (2020), *Doublet-Triplet Splitting in Fertile Left-Right Symmetric Heterotic String Vacua*, Nucl. Phys. B 953 (2020) 114969.
2. A. E. Faraggi, V. G. Matyas and B. Percival (2020), *Stable Three Generation Standard-like Model From a Tachyonic Ten Dimensional Heterotic-String Vacuum*, Eur. Phys. Jour. C 80 (2020) 4.
3. A. E. Faraggi, V.G. Matyas and B. Percival (2020), *Towards the Classification of Tachyon-Free Models From Tachyonic Ten-Dimensional Heterotic String Vacua*, Nucl. Phys. B 0550-3213 (2020) 115231.
4. A. E. Faraggi, V. G. Matyas and B. Percival (2020), *Type 0 Z2 x Z2 Heterotic String Orbifolds and Misaligned Supersymmetry*, IJMP A Vol. 36, No. 24, 2150174 (2021).
5. A. E. Faraggi, V.G. Matyas and B. Percival (2020), *Classification of Non-Supersymmetric Pati-Salam Heterotic String Models*, Phys. Rev. D 104 046002.
6. A. E. Faraggi, V.G. Matyas and B. Percival (2020), *Type* $\overline{0}$ *Heterotic String Orbifolds*, Physics Letters B 814:136080,
7. A. E. Faraggi, B. Percival, S. Schewe and D. Wojtczak (2021), *Satisfiability Modulo Theories and Chiral Heterotic String Vacua with Positive Cosmological Constant*, Physics Letters B. 816. 136187.
8. A. E. Faraggi, V.G. Matyas and B. Percival (2022), *Towards Classification of N=1 and N=0 Flipped SU(5) Asymmetric Z2 x Z2 Heterotic String Orbifolds*, Phys. Rev. D 106, 026011.
9. Alonzo R. Diaz Avalos, A. E. Faraggi, V.G. Matyas and B. Percival (2023), *Fayet-Iliopoulos D-Term in Non-Supersymmetric Heterotic String Orbifolds,* arXiv:2302.10075.

Conference Proceedings

1. A. E. Faraggi, G. Harries, B. Percival and J. Rizos (2020), *Towards machine learning in the classification of Z2 x Z2 orbifold compactifications*, arXiv:1901.04448, doi: 10.1088/1742-6596/1586/1/012032, J. Phys. Conf. Series 1586 vol. 1.

Talks

1. *Classification of Left-Right Symmetric Heterotic String Vacua*, invited talk at DISCRETE 2018 Conference in Vienna.
2. *Classification of Left-Right Symmetric Heterotic String Vacua*, talk at String Phenomenology 2019 Conference at CERN.
3. *Classification of N=1 Heterotic String Vacua and towards N=0 classification*, talk at YTF 2019 conference in Durham.
4. *Non-SUSY String Phenomenology from Z2 x Z2 Heterotic Orbifolds*, invited talk as part of the online String Phenomenology Seminar Series 2020.
5. Speaker prize: *Non-SUSY String Phenomenology from Z2 x Z2 Heterotic Orbifolds*, invited talk at YTF Durham 2020.

6. *Classifying Z2 x Z2 Orbifolds and SAT/SMT Solvers*, invited talk for Liverpool String Phenomenology Weekly Seminars.
7. Plenary Talk at String Phenomenology 2022 Conference