Invited Talks at Conferences, Workshops, and Colloquia

Math Talks

1. **MPI-MiS** (Workshop Invite)
   Computer Algebra, Number Theory and More
   Talk: Murmurations
   Mainz, Germany
   Mar. 2025

2. **MITP, JGU Mainz** (Workshop Invite)
   The Arithmetic of Calabi–Yau Manifolds
   Talk: Arithmetic geometry of rational vertex operator algebras
   Mainz, Germany
   Mar. 2025

3. **IST, Lisbon** (Workshop Invite)
   Fall String Theory Workshop
   Talk: On arithmetic statistics of weight 2 Hecke eigencuspforms
   Lisbon, Portugal
   Oct. 2024

4. **Uni. Potsdam** (Colloquium Invite)
   Talk: Developments in computer assisted number theory and arithmetic geometry
   Potsdam, Germany
   May 2024

5. **INI Cambridge** (Workshop Invite)
   Black Holes: Bridges Between Number Theory and Holographic Quantum Information
   Talk: An introduction to the Birch & Swinnerton-Dyer Conjecture
   Cambridge, UK
   Oct. 2023

6. **INI Cambridge** (Workshop Invite)
   Black Holes: Bridges Between Number Theory and Holographic Quantum Information
   Talk: $g = 2$ hyperelliptic curve invariants, Siegel modular forms and applications
   Cambridge, UK
   Oct. 2023

7. **Simons Center for Geometry and Physics** (Workshop Invite)
   Workshop on Number Theory and Physics
   Talk: Modularity and rational curve counts on $K3$ surfaces
   Stony Brook, USA
   Oct.-Nov. 2022

Mixed Physics-Math Talks

(Physics topics aimed at math audiences, or vice-versa)

8. **MITP, JGU Mainz** (Workshop Invite)
   Physics and Number Theory (Upcoming)
   Talk: Complex Multiplication: History, Theory, Computation and Applications
   Mainz, Germany
   2025

9. **GGI Florence** (Conference Invite)
   Conference on Resurgence and Modularity in QFT and String Theory
   Talk: Real analytic Eisenstein series and quadratic forms in holography
   Florence, Italy
   Apr./May 2024

10. **Simons Center for Geometry and Physics** (Workshop Invite)
    Workshop on Number Theory and Physics
    Talk: Two applications of mock modular forms in string theory
    Stony Brook, USA
    Oct.-Nov. 2022

11. **Kavli IPMU** (Colloquium Invite)
    Talk: Physics and the Hilbert-Pólya conjecture
    Kashiwa, Japan
    Oct. 2022

12. **Riemann Center for Geometry and Physics** (Special Lecture)
    Riemann Fellow Lecture
    Talk: BPS Partition Functions: From physics, to number theory, to geometry
    Hannover, Germany
    May 2022

13. **Kavli IPMU/U.Tokyo** (Colloquium Invite)
    Talk: Quantum black holes: Bridges between mathematics and physics
    Tokyo/Kashiwa, Japan
    Oct. 2021

14. **IST Lisbon** (Workshop Invite)
    Workshop on BPS Black Holes and Quantum Information
    Talk: Generalized Siegel-Weil formula, Chern-Simons invariants and $3d$-gravity
    Lisbon. Portugal
    Sep. 2021

15. **Erwin Schroedinger Institute** (Workshop Invite)
    Workshop on Moonshine
    Talk: Rademacher series for CHL models
    Vienna, Austria
    Sep. 2018

Physics talk

(Physics topics aimed at physics audiences)

16. **Koc Uni. & Bogazici Uni.** (Conference Invite)
Mathematical Physics Days
Talk: Introduction to Moonshine in String Theory
Istanbul, Turkey
Dec 2020

17. **IST Lisbon** (Workshop Invite)
Black Holes: BMS, BPS and Integrability
Talk: Mock-modular black hole entropy from negative discriminant states
Lisbon, Portugal
Sep. 2020

18. **Uni Wien & TU Wien** (Colloquium Invite)
Talk: Auguries of Physical Mathematics
Vienna, Austria
Nov. 2018

19. **GGI Florence** (Workshop Invite)
Supersymmetric Field Theories in the Non-perturbative Regime
Talk: The M_{24} group and elliptic genera of $K3$ superconformal field theories
Florence, Italy
Apr. 2018

Invited Lectures and Seminars

Math seminars

1. **JGU Mainz** (Seminar Invite)
Talk: Siegel modularity of enumerative invariants of $K3$ surfaces and Hilbert schemes
Mainz, Germany
Dec 2024

2. **TU Eindhoven** (Seminar Invite)
Talk: New trends in computational number theory
Eindhoven, Netherlands
Dec 2024

3. **ETH Zurich** (Seminar Invite)
Talk: Computational aspects of the Langlands program
Zurich, Switzerland
July 2024

4. **MPI-MIS** (Seminar Invite)
Talk: Rational point counts and motives for Feynman Integrals
Leipzig, Germany
Mar. 2024

5. **Lehigh University** (Seminar Invite)
Talk: The Hilbert-Polyá conjecture: A survey
Bethlehem, USA
Nov. 2022

6. **ICTP** (Seminar Invite)
Talk: Niemeier Lattices, and Hilbert modular forms from arithmetic of exceptional groups
Trieste, Italy
Jun. 2022

7. **LU Hannover** (Seminar Invite)
Talk: An introduction to moonshine and vertex operator algebras
Hannover, Germany
May 2022

8. **LU Hannover** (Seminar Invite)
Talk: An introduction to wall crossing and Stokes phenomena
Hannover, Germany
Apr. 2022

9. **IST Lisbon** (Seminar Invite)
Talk: Topological modular forms, $\mathcal{N}=1$ VOA's, and Hilbert modularity of error correction codes
Lisbon, Portugal
Dec. 2021

10. **TU Wien** (Seminar Invite)
Talk: Arithmetic chaos, zeroes of the Riemann $\zeta(s)$ function and topological recursions
Vienna, Austria
Sep. 2019

11. **IST Lisbon** (Seminar Invite)
Talk: BPS algebras and moonshine phenomena
Lisbon, Portugal
Oct. 2018

12. **IISc** (Seminar Invite)
Talk: Calabi-Yau manifolds and sporadic groups
Bangalore, India
Dec. 2017

13. **IMSc** (Seminar Invite)
Talk: Calabi-Yau manifolds and sporadic groups
Chennai, India
Dec. 2017

14. **Uni Wien** (Seminar Invite)
Talk: Calabi-Yau manifolds and sporadic groups
Vienna, Austria
Nov. 2017

Mixed Math-Physics seminars

15. **Uni. Vienna** (Seminar Invite)
Talk: Characterization of Rational SCFTs via complex multiplication and mirror symmetry
Vienna, Austria
Apr. 2024

16. **TU Vienna** (Seminar Invite) — Vienna, Austria
    Talk: Non-holomorphic Eisenstein series and quadratic forms in string theory — Apr. 2024

17. **ICTS Bengaluru** (Lecture Invite) — Bengaluru, India
    Lecture: Connections between number theory and physics
    Part 1: Representation theory of automorphic forms, Part 2: L-functions — Apr. 2023

18. **University of Tokyo** (Seminar Invite) — Tokyo, Japan
    Talk: Introduction to the Katz-Sarnak philosophy — Apr. 2023

19. **Kavli IPMU** (Seminar Invite) — Kashiwa, Japan
    Talk: Class numbers and Hilbert modular forms in supergravity — Jun. 2022

20. **Kavli IPMU** (Seminar Invite) — Kashiwa, Japan
    Talk: Comments on number theory and geometry in string theory — Oct. 2020

21. **TU Wien & Uni Wien** (Seminar Invite) — Vienna, Austria
    Talk: An introduction to topological modular forms, $\mathcal{N} = 1$ VOA's, and error correction codes — Nov. 2021

22. **Stanford** (Seminar Invite) — Palo Alto, USA
    Talk: Comments on number theory and geometry for black holes — Mar. 2016

23. **U. Amsterdam** (Seminar Invite) — Amsterdam, Netherlands
    Talk: Number theory and geometry for negative discriminant states in string theory — Feb. 2019

24. **MPP Munich** (Seminar Invite) — Munich, Germany
    Talk: Automorphic properties of wall crossing in string theory — Nov. 2018

25. **IST Lisbon** (Seminar Invite) — Lisbon, Portugal
    Talk: $\Gamma_0(N)$, quantum black holes, and wall crossing — Oct. 2018

Physics seminars

26. **MPI Potsdam** (Seminar Invite) — Potsdam, Germany
    Talk: Modularity and L-values of BPS states — Dec 2024

27. **L2C CNRS, Montpellier** (Seminar Invite) — Montpellier, France
    Talk: Automorphic forms, Arithmetic and String Theory — Mar. 2024

28. **MPI for Gravitational Physics** (Seminar Invite) — Berlin/Potsdam, Germany
    Talk: Automorphic forms, Arithmetic and String Theory — Feb. 2024

29. **IISc Bengaluru** (Seminar Invite) — Bengaluru, India
    Talk: Gravitational path integrals from number theory — May 2023

30. **Caltech** (Seminar Invite) — Pasadena, USA
    Talk: Gravitational path integral for $\mathcal{N} = 4$ $\frac{1}{4}$-BPS black holes from Siegel modular forms — Dec. 2022

31. **Cornell** (Seminar Invite) — Ithaca, USA
    Talk: BPS States and Niemeier Lattices: An Octonionic Supergravity Story — Nov. 2022

32. **Institut Henri Poincaré** (Seminar Invite) — Paris, France
    Talk: Mock modularity from supergravity — Jun. 2022

33. **DESY** (Seminar Invite) — Hamburg, Germany
    Talk: Mock modularity from supergravity — Jun. 2022

34. **LMU Munich** (Seminar Invite) — Munich, Germany
    Talk: Mock modular black hole entropy from supergravity — Nov. 2021

35. **Kavli IPMU** (Seminar Invite) — Kashiwa, Japan
    Talk: Mock modular black hole entropy from supergravity — Oct. 2021

36. **Nagoya U** (Seminar Invite) — Nagoya, Japan
    Talk: Mock modular black hole entropy from supergravity — Oct. 2021

37. **TU Wien & Uni Wien** (Seminar Invite) — Vienna, Austria
    Talk: Generalized Siegel-Weil formula, Chern-Simons invariants, and $3d$-gravity — Aug. 2021

38. **Rutgers** (Seminar Invite) — New Brunswick, USA
    Talk: Computing $\frac{1}{4}$-BPS degeneracies and comments on instanton moduli spaces — Apr. 2020

39. **ICTP** (Seminar Invite) — Trieste, Italy — Jan. 2020
    Talk: Single center BH degeneracies in $4d, \mathcal{N} = 4$ string theory from Dabholkar–Harvey states

40. **Stanford** (Seminar Invite) — Palo Alto, USA — Dec. 2019
    Talk: Counting $\frac{1}{4}$-BPS black holes in $4d, \mathcal{N} = 4$ from $\frac{1}{2}$-BPS degeneracies

41. **TU Wien** (Seminar Invite) — Vienna, Austria — Oct. 2019
    Talk: Wall crossing and jumping in string theory and supersymmetric gauge theories

42. **ICTS** (Seminar Invite) — Bangalore, India — Oct. 2019
    Talk: Towards exact matching of black hole degeneracies from localization and number theory

43. **IISc** (Seminar Invite) — Bangalore, India — Oct. 2019
    Talk: Towards exact matching of black hole degeneracies from localization and number theory

44. **Uni Wien** (Seminar Invite) — Vienna, Austria — Dec. 2018
    Talk: Reconstruction of the Igusa cusp form from localization in supergravity

45. **Erwin Schroedinger Institute** (Seminar Invite) — Vienna, Austria — 2017
    Talk: Entanglement entropy in $U(1)$ gauge theories

46. **TU Wien** (Seminar Invite) — Vienna, Austria — Oct. 2016
    Talk: Some constraints on superconformal field theories