Dr. Benjamin Robert Kane

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Website: http://hkumath.hku.hk/~bkane/

PROFESSIONAL POSITIONS

The University of Hong Kong, Hong Kong

Associate Professor	(tenured)	2019	– Present
Assistant Professor		2013	– 2019

Max-Planck-Institut für Mathematik, Bonn, Germany

Guest	Jul 2014

University of Cologne, Cologne, Germany (top 10 among German universities)

Postdoctoral Assistant	2009 – 2013

Radboud Universiteit, Nijmegen, Netherlands

DIAMANT Postdoctoral Assistant	2007 – 2009

Institute des Hautes Études Scientifiques, Bures-sur-Yvette, Paris, France

Visiting Scholar	Jan – Mar 2008

EDUCATION

University of Wisconsin at Madison, Madison WI, USA

Ph.D. in Pure Mathematics	2002 – 2007

Thesis: Computationally Feasible Bounds for CM Lifts of Supersingular Elliptic Curves

Carnegie Mellon University, Pittsburgh PA, USA

M.S., B.S. Pure Mathematics, B.S. Computer Science	1998 – 2002

Graduated with University Honors, GPA: 3.82/4.00

TEACHING EXPERIENCE

Served as both lecturer (English and German) and teaching assistant, Administrated and graded 500+ person classes, generated homework and exam problems, Supervised graduate thesis projects and undergraduate research

Recent courses lectured:

• Mathematics: A Cultural Heritage	Spring 2015, 2016, 2017, 2018
• Introduction to Number Theory	Spring 2018
• Introduction to Mathematical Analysis	Fall 2014, 2015, 2016
• University Mathematics II	Spring 2014
• Elementary Number Theory (in German)	Spring 2012

(Complete list in Appendix)

RESEARCH INTERESTS

Number Theory (Primary Classification: 11)

Combinatorics (Secondary Classification: 5)

In particular:

- Automorphic and modular forms, mock modular forms and harmonic weak Maass forms
- Analytic number theory, p-adic modular forms, partition theory
- Quadratic forms, computational number theory, q-hypergeometric series

RESEARCH GRANTS

2013	Cooperation Partner on DFG grant of Kathrin Bringmann
2014-2017	Hong Kong RGC Early Career Scheme, 755418 HKD (~$97500 USD)

2015-2018	Hong Kong RGC General Research Fund, 631972 HKD (~$81500 USD)
2016-2019	Hong Kong RGC General Research Fund, 488501 HKD (~$63000 USD)
2017-2020	Hong Kong RGC General Research Fund, 708430 HKD (~$90500 USD)
2018-2021	Hong Kong RGC General Research Fund, 456452 HKD (~$58175 USD)
2020-2023	Hong Kong RGC General Research Fund, co-PI
2022-2025	Hong Kong RGC General Research Fund, 783000 HKD (~$99800 USD)

PROFFESSIONAL SERVICE AND MEMBERSHIPS

2021-present	Associate Editor: Research in Number Theory.
2020—2022	Public Relations Secretary, Hong Kong Mathematical Society
2019	Co-organizer: HKU Number Theory Days 2019, HKU
2019	Conference co-organizer: Automorphic Forms Workshop, Duquesne University, Pittsburgh, PA, USA
2018	Co-organizer: HKU Number Theory Days 2018, HKU
2017	Conference co-organizer: Aspects of automorphic forms and applications, HKU
2016	Lecturer, Conference school on mock theta functions and related topics, Fukuoka, Japan
2015-Present	Co-organizer/Co-Founder, Postgraduate Number Theory Seminar, HKU
2013, 2014	Number Theory Conference co-organizer
2012	Co-organizer with Kathrin Bringmann of the *International Symposium: Modular Forms, Mock Theta Functions and Applications*, Cologne, Germany
2010 – 2013	Co-organizer, Algebra and Number Theory Seminar, University of Cologne
2010	Hiring Committee for W2 Professor in Number Theory, University of Cologne
2009	Co-organizer with Wieb Bosma of *Intercity Number Theory Seminar* on June 12, Nijmegen, Netherlands
2001	Exam Writer of the *Mu Alpha Theta National Convention*
Present	Member of the American Mathematical Society

Refereed journals
- *Advances in Mathematics, International Mathematical Research Notices*
- *Transactions of the AMS, Compositio Mathematica , Proceedings of the AMS*
- *International Journal of Number Theory, Journal of Number Theory*
- *Journal of Combinatorics and Number Theory, ANTS, RIMS, JMAA*
- *Integers Journal, Axioms, Ramanujan Journal, Forum Mathematicum*

AWARDS AND HONORS

2018	Outstanding Young Researcher Award 2018, The University of Hong Kong
2017	Hong Kong Mathematical Society Young Scholar Award 2017
2007	Vilas Travel Grant to Joint Mathematics Meetings, University of Wisconsin
2002, 2005	NSF VIGRE Fellowship, University of Wisconsin
2002	Senior of the Year, Math Department, Carnegie Mellon University
2002	Phi Kappa Phi Honor Society

LANGUAGE SKILLS

English, native language   German, B2 Level, spoken and written
Mandarin Chinese, Intermediate, spoken and written

SELECTED PUBLICATIONS

- K. Bringmann, B. Kane, D. Parry, and R. Rhoades, *On the Andrews-Zagier asymptotics for partitions without sequences*, Adv. Math. **309** (2017), 436-451.

✦ M.-J. Jang, B. Kane, W. Kohnen, and S.-H. Man, *Interesting identities involving weighted representations of integers as sums of arbitrarily many squares,* Proc. Natl. Acad. Sci. (USA), **116,** issue 39 (2019), 19374-19379.

✦ K. Fung and B. Kane, *On sign changes of cusp forms and the halting of an algorithm to construct a supersingular elliptic curve with a given endomorphism ring,* Math. Comp. **87** (2017), 501-514.

(54 accepted, 6 submitted, 11 under preparation: Complete list in Appendix)

REFERENCES: Available Upon Request

APPENDIX (CV: Benjamin Robert Kane)

PUBLICATIONS AND SUBMISSIONS

1. K. Bringmann, B. Kane, and W. Kohnen, *On the boundary behaviour of automorphic forms*, Int. J. Number Theory **2** (2006), 187–194.

2. B. Kane, *Sums of triangular numbers and t-core partitions*, J. Comb. Number Theory **1** (2009), 59–64.

3. B. Kane, *On two conjectures about mixed sums of squares and triangular numbers*, J. Comb. Number Theory **1** (2009), 75–88.

4. D. Aukerman, B. Kane, and L. Sze, *On simultaneous s-cores/t-cores*, Discrete Math. **309** (2009), 2712–2720.

5. B. Kane, *Representing sets with sums of triangular numbers*, Int. Math. Res. Not. **2009** (2009), 3264–3285. (doi:10.1093/imrn/rnp053)

6. B. Kane, *Representations of integers by ternary quadratic forms,* Int. J. Number Theory **6** (2010), 127–158.

7. K. Bringmann and B. Kane, *New identities involving sums of the tails related to real quadratic fields*, Special issue of the Ramanujan J. in honor of G.E. Andrews's 70th birthday, Ramanujan J. **23** (2010), 243–251.

8. B. Kane, *CM liftings of supersingular elliptic curves,* J. Théor. Nombres Bordeaux **21** (2009), 635–663.

9. B. Kane and Z.-W. Sun, *On almost universal mixed sums of squares and triangular numbers*, Trans. Amer. Math. Soc. **362** (2010), 6425–6455.

10. K. Bringmann and B. Kane, *Inequalities for differences of Dyson's rank for all odd moduli*, Math. Res. Lett. **17** (2010), 927–942.

11. D. Jetchev and B. Kane, *Equidistribution of Heegner points and ternary quadratic forms*, Math. Ann. **35** (2011), 501–532.

12. K. Bringmann and B. Kane, *Multiplicative q-hypergeometric series arising from real quadratic fields*, Trans. Amer. Math. Soc. **363** (2011), 2191–2209.

13. B. Kane, *Faber Polynomials and Poincaré series*, Math. Res. Lett. **18** (2011), 591–611.

14. K. Bringmann and B. Kane, *Inequalities for full rank differences of 2-marked Durfee symbols*, J. Combin. Theory Ser. A **119** (2012), 483–501.

15. W. Bosma and B. Kane, *The triangular theorem of eight and a certain non-finiteness theorem*, Proc. Amer. Math. Soc. **141** (2013), 1473-1486.

16. W. Bosma and B. Kane, *The aliquot constant,* Q. J. Math. **63** (2012), 309-323, *doi:10.1093/qmath/haq050.*

17. K. Bringmann, P. Guerzhoy, and B. Kane, *Mock modular forms as p-adic modular forms*, Trans. Amer. Math. Soc. **364** (2012), 2393-2410.

18. K. Bringmann, B. Kane, and R. Rhoades, *Duality and differential operators for harmonic Maass forms,* Dev. Math. **28**, Special volume in memory of Leon Ehrenpreis (2013), 85-106.

19. K. Bringman and B. Kane, *Second-order cusp forms and mixed mock modular forms,* Ramanujan J. **31**, Special volume in honor of Ismail and Stanton (2013), 147-161.

20. K. Bringmann, B. Kane, and W. Kohnen, *Locally harmonic Maass forms and the kernel of the Shintani lift*, Int. Math. Res. Not. **2015** (2015), 3185-3224.

21. K. Bringmann, B. Kane, and S. Zwegers, *On a completed generating function of* locally harmonic *Maass forms,* Compositio Math. **150** (2014), 749-762, doi:10.1112/S0010437X13007719.

22. K. Bringmann, B. Kane, and M. Viazovska, *Theta lifts and local Maass forms,* Math. Res. Lett. **20** (2013), 213-234.

23. K. Bringmann, P. Guerzhoy, and B. Kane, *Shintani lifts and fractional derivatives for harmonic weak Maass forms,* Adv. Math. **255** (2014), 641-671.

24. K. Bringmann and B. Kane, *Sums of class numbers and mixed mock modular forms,* Math. Proc. Cambridge Philos. Soc. **167**, (2019), 321—333.

25. K. Bringmann and B. Kane, *Modular local polynomials,* Math. Res. Lett. **23** (2016), 973-986.

26. K. Bringmann, P. Guerzhoy, and B. Kane, *On cycle integrals of weakly holomorphic modular forms*, Math. Proc. Cambridge Philos. Soc. **158** (2015), 439-449.

27. K. Bringmann and B. Kane, *Ramanujan and coefficients of meromorphic modular forms*, J. Math. Pures Appl. **107** (2017), 100-122.

28. K. Bringmann, B. Kane, and A. von Pippich, *Regularized inner products of meromorphic modular forms and higher Green's functions*, Commun. Contemp. Math, to appear.

29. K. Bringmann, P. Guerzhoy, and B. Kane, *Half-integral weight p-adic coupling of weakly holomorphic and holomorphic modular forms,* Research in Number Theory **1:26** (2015),1-13.

30. K. Bringmann and B. Kane, *A problem of Petersson about weight 0 meromorphic modular forms*, Res. Math. Sci. **3:24** (2016), 1-31.

31. K. Bringmann and B. Kane, *Ramanujan-like formulas for Fourier coefficients of all meromorphic cusp forms,* Adv. Math **373** (2020), 107308.

32. B. Kane and M. Waldherr, *Explicit congruences for mock modular forms,* J. Number Theory **166** (2016), 1-18.

33. K. Fung and B. Kane, *On sign changes of cusp forms and the halting of an algorithm to construct a supersingular elliptic curve with a given endomorphism ring,* Math. Comp. **87** (2017), 501-514.

34. S. Cooper, B. Kane, and D. Ye, *Analogues of the Ramanujan-Mordell Theorem,* J. Math. Anal. Appl. **446** (2017), 568-579.

35. A. Haensch and B. Kane, *Almost universal sums of polygonal numbers,* Research in Number Theory **4:4** (2018), 1-22.

36. K. Bringmann and B. Kane, *Polar harmonic Maass forms and their applications,* Abh. Math. Sem. Hamburg **86** (2016), 213-233.

37. K. Bringmann, B. Kane, S. Löbrich, K. Ono, and L. Rolen, *On divisors of modular forms*, Adv. Math. **329** (2018), 541-554. *Corrigendum:* **DOI:** 10.1016/j.aim.2019.106751

38. K. Bringmann, B. Kane, D. Parry, and R. Rhoades, *On the Andrews-Zagier asymptotics for partitions without sequences*, Adv. Math. **309** (2017), 436-451.

39. K. Bringmann, P. Jenkins, and B. Kane, *Differential operators on polar harmonic Maass forms and elliptic duality*, Q. J. Math. **70** (2019), 1181-1207, DOI: 10.1093/qmath/haz009.

40. B. Kane and S. Man, *The Bruinier--Funke pairing and the orthogonal complement of unary theta functions*, in Bruinier, J. and Kohnen, W. (Eds.), L-functions and automorphic forms, Contributions in Mathematical and Computational Sciences **10** (2017), Springer, 139-157, DOI: 10.1007/978-3-319-69712-3_8.

41. K. Bringmann and B. Kane, *Regularized inner products and weakly holomorphic Hecke eigenforms*, Journal of Physics A: Mathematical and Theoretical **51** (2018), 044001.

42. S. Ehlen, P. Guerzhoy, B. Kane, and L. Rolen, *Central L-values of elliptic curves and local polynomials*, Proc. London Math. Soc. **120** (2020), 742-769.

43. B. Kane and J. Liu, *Universal sums of m-gonal numbers*, Int. Math. Res. Not., accepted for publication, DOI: 10.1093/imrn/rnz003.

44. K. Bringmann and B. Kane, *An extension of Rohrlich's Theorem to the j-function*, Forum Math. Sigma **8** (2020), e3, 1-33, DOI: 10.1017/fms.2019.46.

45. M.-J. Jang, B. Kane, W. Kohnen, and S.-H. Man, *Interesting identities involving weighted representations of integers as sums of arbitrarily many squares,* Proc. Natl. Acad. Sci. (USA), **116,** issue 39 (2019), 19374-19379.

46. Z. He and B. Kane, *Regular ternary polygonal forms,* Ramanujan J., accepted for publication.

47. S. Banerjee, M. Batavia, B. Kane, M. Kyranbay, D. Park, S. Saha, H. C. So, and P. Varyani, *Fermat's polygonal number theorem for repeated generalized polygonal numbers,* J. Number Theory **220** (2021), 163-181.

48. K. Bringmann and B. Kane, *Class numbers and representations by ternary quadratic forms with congruence conditions*, Mathematics of Computation **91** (2022), 295—329.

49. Z. He and B. Kane, *Sign changes of Fourier coefficients of cusp forms of half-integral weight over split and inert primes in quadratic number fields*, Research in Number Theory **7:10** (2021), 1-21.

50. K. Bringmann, B. Kane, L. Rolen, and Z. Tripp, *Fractional partitions and conjectures of Chern--Fu--Tang and Heim—Neuhauser*, Trans. Amer. Math. Soc. B **8** (2021), 615—634.

51. K. Bringmann, B. Kane, and J. Males, *On t-core and self-conjugate (2t-1)-core partitions in arithmetic progressions,* J. Combin. Theory Ser. A **183** (2021), 105479.

52. B. Kane and S. Pujahari, *Distribution of moments Hurwitz class numbers in arithmetic progressions and holomorphic projection*, submitted for publication.

53. K. Bringmann, M.-J. Jang, and B. Kane, *Representations of integers as sums of four polygonal numbers and partial theta functions,* submitted for publication.

54. K. Bringmann and B. Kane, *The degenerate parts of spaces of meromorphic cusp forms under a regularized inner product*, Adv. Math. **402** (2022), to appear.

55. P. Guerzhoy and B. Kane, *A very special case of Siegel's mass formula and Hecke operators,* submitted for publication

56. S. Banerjee and B. Kane, *Finiteness theorems for universal sums of squares of almost primes,* Trans. Amer. Math. Soc., to appear.

57. K. Bringmann and B. Kane, *Generalized L-functions for meromorphic modular forms and their relation to the Riemann zeta function*, submitted for publication.

58. K. Bringmann, B. Kane, and S. Pujahari, *Odd moments for the trace of Frobenius and the Sato-Tate conjecture in arithmetic progressions*, submitted for publication.

59. K. Bringmann and B. Kane, *Conjectures of Sun about sums of polygonal numbers*, La Mathematica, accepted for publication.

60. R. Kamaraj, B. Kane, and R. Tomiyasu, *Universal sums of generalized heptagonal numbers*, submitted for publication.

EXPOSITORY PAPERS AND BOOK CHAPTERS

1. B. Kane, *Regularized Petersson inner products for meromorphic modular forms*, Proceedings of RIMS (Surikaisekikenkyusho) Kokyuroku conference "Automorphic forms,

automorphic L-functions, and related topics" held at RIMS in February, 2016, (2017), 20-30.

2. K. Bringmann, B. Kane, S. Löbrich, K. Ono, and L. Rolen, *Number theoretic generalizations of the Monster denominator formula*, Journal of Physics A: Mathematical and Theoretical **50** (2017), 473001.

3. B. Kane, *Polar harmonic Maass forms*, Book chapter in "Encyclopedia of Srinivasa Ramanujan and His Mathematics", to appear, 3 pages.

4. A. Haensch and B. Kane, *An algebraic and analytic approach to spinor exceptional behavior in translated lattices*, Conference Proceedings of the 3$^{\text{rd}}$ Building Bridges Workshop (11-22 July, 2016), AMS Contemporary Mathematics series **732** (2019), 85-90.

5. B. Kane, *The Monster denominator formula*, Book chapter in "Encyclopedia of Srinivasa Ramanujan and His Mathematics", to appear, 4 pages.

ADVISING AND CO-ADVISING / MENTORING

- Postdoctoral mentoring/RAs:
  - Jingbo Liu (Sept. 2016 - current, University of Hong Kong), postdoc
  - Sudhir Pujahari (April 2018 – current, University of Hong Kong), postdoc
  - Min-Joo Jang (July 2018 – current, University of Hong Kong), postdoc
  - Soumyarup Banerjee (Sept. 2018 – current, University of Hong Kong), postdoc
  - Andy Kar Lun Kong (June 2019 – current, University of Hong Kong), postdoc
  - Dayoon Park (Starting February 2020, University of Hong Kong), postdoc
  - Swati Setia (Mar. 2018 – July 2018, University of Hong Kong), RA
- Ph.D. students:
  - Andy Kar Lun Kong (Sept. 2014 – Dec. 2017, University of Hong Kong, Hong Kong)
  - Zilong He (Sept. 2016 – current, University of Hong Kong, Hong Kong)
- Masters students:
  - Fung King Cheong (Jan. 2015 – Jan. 2017, University of Hong Kong, Hong Kong)
- Summer Research
  - Utkarsh Ruhela (IIT Roorkee, India), Visited 05/2015—07/2015 and 12/2017
  - Xu YuJie (HKU), SRF, Summer 2015
  - Bon Bong (HKU), SRF, Summer 2016
  - Archie Mehta (IIT Roorkee, India), Visited 05/2016—07/2016
  - Siu Hang Man (HKU), Summer internship, Summer 2016
  - Chung Ping Lai (HKU), Summer internship, Summer 2016
  - Long Tin Chan (Univ. of Cambridge, England), Summer 2016
  - Atin Modi (IIT Roorkee, India), visited 05/2017—07/2017
  - Saraswati Nanoti (IIT Roorkee, India), Visiting 05/2017—07/2017 and 12/2017-03/18
  - Jincheng Tang (HKU), SRF, Summer 2017
  - Tejas Ramesh (HKU), SRF, Summer 2017
  - Jiaqi Leng (HKU), SRF, Summer 2017

- ◦ Ekansh Jh (IIT Roorkee, India), visited 12/2017
- ◦ Sabir Sk (Chennai Mathematical Institute, India), visited 12/2017
- ◦ Piyush Varyani (IIT Roorkee, India), visited 05/2018 – 07/2018 and 05/2019 – 07/2019
- ◦ Mohit Bhalla (IIT Roorkee, India), visited 05/2018 – 07/2018
- ◦ Ramanujam Kamaraj (HKU), SRF, Summer 2018
- ◦ Shuang Liang (HKU), SRF, Summer 2018
- ◦ Sang Yan (HKU), SRF, Summer 2018
- ◦ Chia-Chun Hsieh (HKU), SRF, Summer 2018
- ◦ Fu Yaoying (HKU), Undergraduate Research Assistant, Summer 2018
- ◦ Yuet Ming David Chan (HKU), Undergraduate Research Assistant, Summer 2018
- ◦ Siu Ling Lam (HKU), Undergraduate Research Assistant, Summer 2018
- ◦ Sze Wing Fong (HKU), Undergraduate Research Assistant, Summer 2018
- ◦ Chi Ho Au (HKU), Summer Internship, Summer 2018
- ◦ Wai Hung Law (HKU), Summer Internship, Summer 2018
- ◦ Rian Chakraborty (Anand International College Of Engineering, India), visited 06/2018 – 09/2018
- ◦ Chun Chong (Oxford University), visited 07/2018 – 09/2018
- ◦ Laxmikant Mishra (IIT Roorkee, India), visited 11/2018 – 01/2019
- ◦ Udit Kalani (IIT Roorkee, India), visited 11/2018 – 01/2019
- ◦ Manav Batavia (IIT Bombay, India), visited 05/2019 – 07/2019
- ◦ Muratzhan Kyranbay (Hong Kong Baptist University), visited 05/2019--07/2019
- ◦ Sagnik Saha (IISER Thiruvananthapuram, India), visited 05/2019 – 07/2019
- ◦ Hiu Chun Ho (HKU), Undergraduate Research Assistant, Summer 2019
- ◦ Junyuan Liang (HKU), Summer Internship, Summer 2019
- Undergraduate Research projects
  - ◦ 2014—2015: Chan, Yui Him Jacky (HKU)
  - ◦ 2016—2017: Yang, Ruoxuan (HKU)
- Co-advised Bachelor Theses:
  - ◦ Miriam Azoulay (July 2011 – Advisor: Kathrin Bringmann)
  - ◦ Zhe Lü (July 2013 – Advisor: Kathrin Bringmann)
  - ◦ Assisted Amitabha Tripathi (IIT Delhi, India) to find student's thesis topic.
- Co-advised Masters Theses:
  - ◦ Saraswati Nanoti (IIT Roorkee, India), external research advisor.
- Co-advised Ph.D. Students:
  - ◦ René Olivetto (Ph. D. 2014 – Advisor: Kathrin Bringmann)

PRESENTATIONS
http://arxiv.org/abs/1409.0793
• May 2002, Simultaneous s/t-cores, Thesis Defense, Carnegie Mellon University, Pittsburgh, PA.
• November 2005, Boundary Behavior of Modular Forms, Midwest Number Theory Conference for Graduate Students III, University of Wisconsin - Madison.
• March 2006, Boundary Behavior of Modular Forms, The 20th AnnualWorkshop on Automorphic Forms and Related Topics, University of Colorado at Boulder.
• October 2006, Ternary Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, Midwest Number Theory Conference for Graduate Students IV, University of Illinois at Urbana-Champaign.
• April 2007, Computationally Feasible Bounds for Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, Ph.D. Thesis Defense, University of Wisconsin - Madison.

• November 2007, Computationally Feasible Bounds for Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, DIAMANT/EIDMA Symposium, Amersfoort, Netherlands.

• December 2007, Computationally Feasible Bounds for Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, Invited Speaker, l-adic cohomology and number fields, Centre International de Rencontres Mathématiques (CIRM/Luminy), Marseille, France.

• January 2009, Equidistribution of Heegner Points and Quadratic Forms, Joint meetings of the AMS-MAA, Washington, DC, USA.

• May 2009, Multiplicative q-hypergeometric Series and Real Quadratic UFDs, Mock theta functions and applications in combinatorics, algebraic geometry, and mathematical physics, Bonn, Germany.

• September 2009, Equidistribution of Heegner Points and Quadratic Forms, Seminar Aachen-Köln-Lille-Siegen on Automorphic Forms, Siegen, Germany.

• December 2009, Inequalities for differences of Dyson's rank for all odd moduli, Number Theory and Mock Theta Functions: SASTRA Ramanujan Prize Conference, SASTRA University, Tamil Nadu, India.

• August 2010, Mock modular forms as p-adic modular forms, Durham Days on Modular forms, Durham, England.

• January 2011, Mock modular forms as p-adic modular forms, The number theory of partitions, Emory University, Atlanta, GA, USA.

• February 2011, Faber polynomials and Poincaré series, School and Conference on Modular Forms and Mock Modular Forms and their Applications in Arithmetic, Geometry and Physics, International Center for Theoretical Physics, Trieste, Italy.

• September 2011, Locally harmonic Maass forms, Deutsche Mathematiker-Vereinigung Jahrestagung Köln 2011 (DMV yearly meeting), Cologne, Germany.

• November 2011, Representations by triangular, square, and pentagonal sums, Diophantine methods, lattices, and arithmetic theory of quadratic forms, Banff International Research Station, Banff, Canada.

• February 2012, Locally harmonic Maass forms and rational periods, Symposium on Modular Forms, Mock Theta Functions, and Applications, Cologne, Germany.

• March 2012, Representations by triangular, square, and pentagonal sums, AMS Western Sectional Meeting, Honolulu, Hawaii, USA.

• March 2012, Locally harmonic Maass forms and rational periods, Hawaii conference in algebraic number theory, arithmetic geometry, and modular forms, Honolulu, Hawaii, USA

• August 2012, Locally harmonic Maass forms and rational periods, Building Bridges: 1st EU-US Conference on Automorphic Forms and Related Topics, Aachen, Germany.

• November 2012, Locally harmonic Maass forms, Algebraic geometry, modular forms and applications to physics, Edinburgh, Scotland.

• December 2012, Mock modular forms as p-adic modular forms, The Legacy of Srinivasa Ramanujan, Delhi, India.

• March 2013, Locally harmonic Maass forms, Automorphic Forms and L-functions, on the occasion of Winfried Kohnen's 60th birthday, Darmstadt, Germany.

• November 2013, Sums of class numbers and mixed mock modular forms, Number theory conference, the University of Hong Kong.

• November 2014, Cycle integrals of meromorphic modular forms and CM-values of automorphic forms, Number theory conference, the University of Hong Kong.

• August 2015, Meromorphic modular forms and polar harmonic Maass forms, 5th East Asia Number Theory Conference, Chuncheon, Korea.

• January 2016, Meromorphic modular forms and polar harmonic Maass forms, Automorphic forms, automorphic L-functions, and related topics, Research Institute for Mathematical Sciences, Kyoto, Japan.
• March 2016, Fourier coefficients of meromorphic modular forms, Main talk at Number Theory in honor of Krishna Alladi's 60th birthday, University of Florida, Gainesville, Florida, USA
• March 2016, Inner products of meromorphic modular forms, Number Theory in honor of Krishna Alladi's 60th birthday, University of Florida, Gainesville, Florida, USA
• July 2016, On sign changes of cusp forms and the halting of an algorithm to construct a supersingular elliptic curve with a given endomorphism ring, Pan Asia Number Theory Conference, Academia Sinica, Taipei, Taiwan.
• June 2017, Regularized inner products and meromorphic modular forms, International conference on special functions: theory, computation, and applications, City University of Hong Kong, Hong Kong.
• June 2017, Regularized inner products and meromorphic modular forms, Postech-HIT International Number Theory Workshop on Arithmetics of Automorphic Forms, HIT, Harbin, China.
• June 2017, Sign changes of Fourier coefficients of cusp forms and representations of integers by quadratic polynomials, Postech-HIT International Number Theory Workshop on Arithmetics of Automorphic Forms, HIT, Harbin, China.
• July 2017, Regularized inner products and meromorphic modular forms, Aspects of automorphic forms and applications, The University of Hong Kong, Hong Kong.
• September 2017, Sums of class numbers and mixed mock modular forms, International conference on class groups of number fields & related topics, Harish-Chandra Research Institute, Allahabad, India.
• December 2017, Regularized inner products and meromorphic modular forms, Trends in modular forms, National Institute for the Mathematical Sciences, Daejeon, South Korea.
• March 2018, The mathematical key to unlocking the mysteries of cryptography, University of Hong Kong, public lecture (in Mandarin).
• April 2018, Universal sums of polygonal numbers, Number Theory and its connections with Random Matrices and Extreme Values, University of Hong Kong, Hong Kong.
• October 2018, An algebraic approach to the Siegel-Weil average for binary quadratic forms, International conference on class groups of number fields & related topics - 2018, Harish-Chandra Research Institute, Allahabad, India.
• January 2019, An algebraic approach to the Siegel-Weil average for binary quadratic forms, Conference on the arithmetic theory of quadratic forms, Seoul National University, Seoul, South Korea.
• October 2019, Closing plenary talk: Ternary quadratic forms with congruence conditions and class numbers of imaginary quadratic orders, International conference on class groups of number fields & related topics - 2019, Harish-Chandra Research Institute, Allahabad, India.

Colloquia and Seminars:

• March 2004, Lifting Automorphisms of Quotients by Central Cyclic Subgroups, University of Wisconsin – Madison, Madison, Wisconsin.
• July 2005, Lifting Automorphisms, Invited Colloquium, California Polytechnic State University, San Luis Obispo, California.
• January 2006, Boundary Behavior of Modular Forms, University of Wisconsin - Madison, Madison, Wisconsin.

• June 2007 Computationally Feasible Bounds for Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, Number Theory Seminar, Academia Sinica, Taipei, Taiwan.
• July 2007 Computationally Feasible Bounds for Quadratic Forms and CM Lifts of Supersingular Elliptic Curves, Number Theory Seminar, National Center for the Theoretical Sciences, National Tsing Hua University, Hsinchu, Taiwan.
• September 2007, Simultaneous s-cores and t-cores, Colloquium, Radboud Universiteit, Nijmegen, Netherlands.
• November 2007, The Triangular Theorem of 8, Invited Colloquium, Universiteit Leiden, Leiden, Netherlands.
• January 2008, Some Effectively Computable Applications of GRH, Number Theory Seminar, University of Paris VI - Diderot, Paris, France.
• April 2008, Some Effectively Computable Applications of GRH, Number Theory Seminar, University College Dublin, Dublin, Ireland.
• November 2008, Equidistribution of Heegner Points and Quadratic Forms, University of Cologne, Cologne, Germany.
• May 2009, Equidistribution of Heegner Points and Quadratic Forms, Intercity Number Theory Seminar, Eindhoven, Netherlands.
• December 2009, Equidistribution of Heegner Points and Quadratic Forms, Saarland University, Saarbrücken, Germany.
• April 2010, Mock modular forms as p-adic modular forms, Max Planck Institute of Mathematics - Bonn, Bonn, Germany.
• June 2010, Mock modular forms as p-adic modular forms, Number Theory Seminar, University of Heidelberg, Heidelberg, Germany.
• April 2011, Equidistribution of CM points and ternary quadratic forms, Colloquium, Iowa State University, Ames, IA, USA.
• April 2011, Equidistribution of CM points and ternary quadratic forms, Colloquium, California State University - San Marcos, San Marcos, CA, USA.
• December 2011, Locally harmonic Maass forms and rational period functions, Bonn – Cologne Number Theory and Physics Seminar, Cologne, Germany.
• February 2012, Locally harmonic Maass forms, Colloquium, Jacobs University, Bremen, Germany.
• March 2012, Locally harmonic Maass forms, Colloquium, King's College London, London, England.
• March 2012, Locally harmonic Maass forms and rational periods, Colloquium, California State University – Northridge, Los Angeles, CA, USA.
• October 2012, Locally harmonic Maass forms and the Shimura lift, Colloquium, University of Nottingham, Nottingham, England.
• October 2012, Local Maass forms and theta lifts, Number Theory Seminar, Max Planck Institute of Mathematics – Bonn, Bonn, Germany.
• November 2012, Locally harmonic Maass forms, Colloquium, Leibniz Universität Hannover, Hannover, Germany.
• November 2012, Lokal harmonische Maassformen, Colloquium, Universität zu Köln, Cologne, Germany.
• November 2012, Lokal harmonische Maassformen, Colloquium, Technische Universität Darmstadt, Darmstadt, Germany.
• December 2012, Locally harmonic Maass forms, Colloquium, Utrecht University, Utrecht, Netherlands.
• January 2013, Equidistribution and its applications, Colloquium, Singapore University of Technology and Design.

• February 2013, Locally harmonic Maass forms, Colloquium, the University of Hong Kong, Hong Kong.
• March 2014, Locally harmonic Maass forms, Colloquium, the Hong Kong University of Science and Technology.
• October 2014, Sums of class numbers and mixed mock modular forms, Colloquium, Texas A&M University – Qatar.
• November 2014, Sums of class numbers and mixed mock modular forms, Taipei Number Theory Seminar, National Taiwan University, Taipei, Taiwan.
• November 2017, Sign changes of Fourier coefficients of cusp forms and representations of integers by quadratic polynomials, Colloquium, University of Hawaii, Honolulu, Hawaii, USA.
• December 2017, Universal sums of polygonal numbers, Seoul National University, Seoul, South Korea.
• October 2018, An algebraic approach to the Siegel-Weil average for binary quadratic forms, The University of Hong Kong, Hong Kong.
• November 2018, Colloquium, The mathematical key to unlocking the mysteries of cryptography, Duquesne University, Pittsburgh, PA, USA.

TEACHING EXPERIENCE

• Fall 2019, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Spring 2019, Lecturer, Introduction to Number Theory, University of Hong Kong, Hong Kong.

• Spring 2019, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Spring 2019, Directed Studies, University of Hong Kong, Hong Kong.

• Spring 2018, Lecturer, Introduction to Number Theory, University of Hong Kong, Hong Kong.

• Spring 2018, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Fall 2017, Directed Studies, University of Hong Kong, Hong Kong.

• Spring 2017, co-teacher, Senior Mathematics Seminar, University of Hong Kong, Hong Kong.

• Spring 2017, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Fall 2016, Lecturer, Introduction to Mathematical Analysis, University of Hong Kong, Hong Kong.

• Spring 2016, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Fall 2015, Lecturer, Introduction to Mathematical Analysis, University of Hong Kong, Hong Kong.

• Spring 2015, Lecturer, Mathematics: A Cultural Heritage, University of Hong Kong, Hong Kong.

• Fall 2014, Lecturer, Introduction to Mathematical Analysis, University of Hong Kong, Hong Kong.

• Spring 2014, Lecturer, University Mathematics II, University of Hong Kong, Hong Kong.

• Spring 2013, Assistant, Seminar on Mock theta functions, University of Cologne, Cologne, Germany.

• Fall 2012, Assistant, Seminar on Elliptic functions, University of Cologne, Cologne, Germany.

• Spring 2012, Lecturer (in German), Elementary Number Theory, and Seminar on L-functions, University of Cologne, Cologne, Germany.

• Fall 2011, Assistant, Linear Algebra I and Seminar on Jacobi Forms,
University of Cologne, Cologne, Germany.

• Spring 2011, Assistant, Complex Analysis and Seminar on Modular Forms,
University of Cologne, Cologne, Germany.

• Fall 2010, Assistant, Elementary Number Theory and Seminar on Ramanujan's Lost Notebook, University of Cologne, Cologne, Germany.

• Fall 2009/Spring 2010, Assistant Linear Algebra I/II
(includes administration for 500+ person class and homework / exam generation),
University of Cologne, Cologne, Germany.

• Fall 2008, Lecturer, Random Graph Theory - Master's course,
Radboud Universiteit, Nijmegen, Netherlands.

• Fall 2005, Grader, Linear Algebra, University of Wisconsin – Madison.

• Fall 2004, Grader, Graduate Algebra II, University of Wisconsin – Madison.

• Spring 2004, Fall 2004, Spring 2005, Teaching Assistant (own lecture), College Algebra I, University of Wisconsin – Madison.

• Fall 2004, Teaching Assistant, Calculus I, University of Wisconsin – Madison.

• Summer 2002, Teaching Assistant, Concepts of Mathematics, Carnegie Mellon University.

• Fall 2001, Grader, Concepts of Mathematics, Carnegie Mellon University.

• Fall 2000, Teaching Assistant, Differential Equations, Carnegie Mellon University.

• Spring 2000, Teaching Assistant, Calculus I, Carnegie Mellon University.

• Fall 1999, Teaching Assistant, Concepts of Mathematics, Carnegie Mellon University.