

# Curriculum Vitae

## Ameya Pitale

### Institutional address

Department of Mathematics,  
University of Oklahoma,  
Norman, OK 73019  
Ph: 4053256711

### Web address

apitale@ou.edu  
www.math.ou.edu/~apitale

### Employment

2019– Professor, University of Oklahoma  
2014 – 2019 Associate Professor, University of Oklahoma  
2010 – 2014 Assistant Professor, University of Oklahoma  
2009 – 2010 NSF-AIM Post-Doctoral researcher, American Institute of Mathematics  
2006 – 2009 Post-Doctoral faculty, University of Oklahoma

### Education

2000 – 2006 Ph.D., The Ohio State University, Supervisor: Professor Steve Rallis  
1995 – 2000 Masters degree in Mathematics at the Indian Institute of Technology, Kanpur, India

### Awards and Grants

- Simons Foundation Collaboration grant for Mathematicians, Award number 586177, “Arithmetic of special values of L-functions”, 2018-2023.
- University of Oklahoma Presidential International Travel Fellowship for travel to the “Building Bridges : EU-US Workshop on Automorphic Forms and related topics” at University of Bristol, UK from July 7 to 11, 2014
- National Science Foundation (Division of Mathematical Sciences, Number Theory program), DMS 1100541, Principal Investigator, “Bessel Models and the Transfer of Siegel Cusp Forms of Degree 2”, 2011-2014, \$285,068.
- National Science Foundation (Division of Mathematical Sciences) Co - PI, “Collaborative Research: Texas-Oklahoma Representations and Automorphic forms (TORA)”, 2011-2012, \$8000.
- National Science Foundation (Division of Mathematical Sciences) Co - PI, “Collaborative Research: Texas-Oklahoma Representations and Automorphic forms (TORA)”, 2013-2014, \$12000.

- National Science Foundation (Division of Mathematical Sciences) Co - PI, “Collaborative Research: Texas-Oklahoma Representations and Automorphic forms (TORA)”, 2016-2018, \$13000
- American Institute of Mathematics (AIM) SQuaRE (Structured Quartet Research Ensembles) for 2010-2013 with David Farmer (AIM), Nathan Ryan (Bucknell University) and Ralf Schmidt (OU).
- OU Faculty Enrichment Grant for travel to International Colloquium in Automorphic Forms and L-functions, at TIFR Mumbai, India Jan 3-11, 2012.
- VIGRE Special Graduate Assignment Fellowship : Autumn 2003, Winter 2005.
- Indian National Board of Higher Mathematics scholarship : 1998 – 2000.

## Research Interests

Number theory, automorphic forms and representations, converse theorems, special values of  $L$ -functions, Siegel modular forms, analytic number theory

## Publications

1. *Lifting from  $\widetilde{SL}_2$  to  $GSpin(1, 4)$* , Int. Math. Res. Not., **63**, 3919 - 3966 (2005)
2. *Sign changes of Hecke eigenvalues of Siegel cusp forms of degree 2*, Proc. Amer. Math. Soc. **136**, 3831-3838 (2008) (with Ralf Schmidt)
3. *Ramanujan type results for Siegel cusp forms of degree 2*, J. Ramanujan Math. Soc., Volume **22** No. 1, 87-111 (2009) (with Ralf Schmidt)
4. *Jacobi Maass forms*, Abh. Math. Sem. Univ. Hamburg, **79**, 87-111 (2009)
5. *Integral representation for  $L$ -functions for  $GSp_4 \times GL_2$* , J. Number Theory, **129**, 1272-1324 (2009) (with Ralf Schmidt)
6. *Bessel models for lowest weight representations of  $GSp(4, \mathbb{R})$* , Int. Math. Res. Not., Volume **2009**, No. 7, 1159-1212 (2009) (with Ralf Schmidt)
7. *Classical interpretation of the Ramanujan conjecture for Siegel cusp forms of genus  $n$* , Manuscr. Math., **130**, Issue 2, 225-231 (2009)
8. *Steinberg representation of  $GSp_4$ : Bessel models and integral representation of  $L$ -functions*, Pacific Journal of Mathematics, Vol **250**, no. 2, 365-406 (2011)
9. *Irreducibility Criteria for Local and Global Representations*, Proc. Amer. Math. Soc. **141**, no. 1, 55-63 (2013) (with Hiro-Aki Narita and Ralf Schmidt)
10. *Special values of  $L$ -functions for Saito-Kurokawa lifts*, Mathematical Proceedings of the Cambridge Philosophical Society, Vol **155**, Issue 2, 237-255 (2013) (with James L. Brown)

11. *Talking Mathematics: An abstract algebra professors teaching diaries*, Research in Undergraduate Mathematics Education (RUME) Conference, Denver, Colorado, Feb 21-24 (2013) (with John Paul Cook, Ralf Schmidt and Sepideh Stewart)
12. *Bounds for Rankin-Selberg integrals and quantum unique ergodicity for powerful level*, J. Amer. Math. Soc., **27**, 147-191(2014) (with Paul Nelson and Abhishek Saha)
13. *Transfer of Siegel cusp forms of degree 2*, Mem. Amer. Math. Soc., Volume **232**, Number 1090 (2014) (with Abhishek Saha and Ralf Schmidt)
14. *Bessel models for  $\mathrm{GSp}(4)$ : Siegel vectors of square-free level*, J. Number Theory **136**, 134-164 (2014) (with Ralf Schmidt)
15. *Characterizations of the Saito-Kurokawa lifting: a survey*, Rocky Mountain J. Math., **43**, 1747-1757 (2014) (with David Farmer, Nathan Ryan and Ralf Schmidt)
16. *Living it up in the formal world: An abstract algebraist's teaching journey*, RUME conference, contributed research paper (2014) (with John Paul Cook, Ralf Schmidt and Sepideh Stewart)
17. *Representations of  $\mathrm{SL}(2, \mathbb{R})$  and nearly holomorphic modular forms*, Surikaiseikikenkyusho Kokyuroku (Research Institute for Mathematical Sciences, Kyoto University) 1973, 141-154 (2015) (with Abhishek Saha and Ralf Schmidt)
18. *Lifting to  $\mathrm{GL}(2)$  over a division algebra and an explicit construction of CAP representations*, Nagoya Mathematical Journal, **222**, 137-185 (2016) (with Masanori Muto and Hiro-aki Narita)
19. *Glycemic variability is associated with markers of vascular stress in adolescents*, Journal of Pediatrics , doi:10.1016/j.jpeds.2016.01.065, (2016) (with Paul Dasari MD, Benjamin Gandomani BS, April Teague MS, Michael Otto PhD and Kevin Short PhD)
20. *Test vectors for  $\mathrm{GL}_2$  and explicit L-values*, Algebra and Number Theory **11**, no 2, 253-318 (2017) (with Daniel File and Kimball Martin)
21. *Local and global Maass relations*, Mathematische Zeitschrift **287**, no. 1-2, 655-677 (2017) (with Abhishek Saha and Ralf Schmidt)
22. *A note on the growth of nearly holomorphic vector-valued Siegel modular forms*, L-functions and automorphic forms, Contributions to Mathematics and Computer Science **10**, 2018 (with Abhishek Saha and Ralf Schmidt)
23. *Analytic L-functions: Definitions, Theorems, and Connections*, Bull. Amer. Math. Soc. **56**, no. 2, 261-280 (2019) (with David Farmer, Nathan Ryan and Ralf Schmidt)
24. *Restrictions of Eisenstein series and Rankin-Selberg convolution*, Documenta Mathematica, **24**, 1-45 (2019)(with Rodney Keaton)
25. *Multiplicity one for L-functions and applications*, submitted, arXiv:1305.3972 (with David Farmer, Nathan Ryan and Ralf Schmidt)
26. *Lowest weight modules for  $\mathrm{Sp}(4, \mathbb{R})$  and nearly holomorphic Siegel modular forms*, to appear in Kyoto Journal of Mathematics (2019) (with Abhishek Saha and Ralf Schmidt)

27. *Explicit refinements of Bocherer’s conjecture for Siegel modular forms of squarefree level*, to appear in Journal of the Mathematical Society of Japan (with Martin Dickson, Abhishek Saha and Ralf Schmidt)
28. *On the standard  $L$ -function for  $\mathrm{GSp}_{2n} \times \mathrm{GL}_1$  and algebraicity of symmetric fourth  $L$ -values for  $\mathrm{GL}_2$* , submitted arXiv:1803.06227 (with Abhishek Saha and Ralf Schmidt)
29. *An explicit construction of non-tempered cusp forms on  $\mathrm{O}(1, 8n + 1)$* , to appear in Annales Math. Quebec (with Yingkun Li and Hiro-aki Narita)
30. *Siegel modular forms: A classical and representation-theoretic approach*, Springer Lecturer Notes in Mathematics, vol 2240 (2019)
31. *CAP representations on  $\mathrm{GL}_2$  over a definite division quaternion algebra of discriminant 3 and 5*, in preparation (with Hiro-aki Narita)
32. *Explicit average central  $L$ -values for modular forms with high level*, in preparation (with Rodney Keaton and Kimball Martin)
33. *Integrality of Siegel Eisenstein series and congruent Siegel modular forms of arbitrary level*, in preparation (with Abhishek Saha and Ralf Schmidt)

## Graduate students

1. Siddhesh Wagh, expected to finish Summer 2019
2. Shuji Horinaga, joint advisor with Prof Tamotsu Ikeda at Kyoto University. Expected to finish Spring 2020.

## Teaching experience

- 2006– University of Oklahoma. *Courses taught:* Calculus I, II, III, IV, Ordinary Differential Equations, Linear Algebra, Introduction to Abstract Algebra, Abstract Algebra, Abstract Linear Algebra, Topics in Number Theory, Topics in Algebra, Discrete Math
- 2000 – 2006 Graduate teaching assistant at The Ohio State. *Courses taught:* Calculus I, II, III, IV, Mathematical analysis for Business, Basic College Mathematics

## Synergistic Activities

- Co-organizer of TORA IX at the University of Oklahoma, Norman, OK, April 7-8, 2018.
- Invited by the Government of India to give a two week course on “Siegel modular forms and associated representations” as part of the **Global Initiative of Academic Networks (GIAN)** proposal. This course was held at IISER, Pune from August 8 to 18, 2017 and was directed towards graduate students and young researchers. It consisted of 10 lectures of 90 minutes and 10 tutorials of 75 minutes each. Detailed lecture notes and video recordings of lectures were prepared and made available to the general public. Was awarded \$12000 for the workshop.

- External member for the PhD dissertation committee for Jolanta Marzec at the University of Bristol, UK, May 2016.
- Part of a STEM panel at the University of Oklahoma Tenure and Promotion Workshop, Feb 20, 2016
- Presented a talk “Continued fractions” in a session for Math Teacher’s Circle for middle school teacher held at OSSM, Oklahoma City on Nov 16, 2015
- Member of the OU math department team awarded a CIP award from the Center for Teaching Excellence at OU to redesign the introductory course MATH 1523 - Trigonometry and Precalculus.
- Member of “Math Success Group”, a group of mathematics faculty from the universities in the state of Oklahoma. The group is created by the Oklahoma State Regents for higher education and is expected to facilitate input on – Improving math preparation of students entering college, reforming math remediation and strengthening the pipeline for math preparation in all majors.
- “All you wanted to know about prime numbers” Invited student lecture at the Mathematical Association of America sectional meeting at the Oklahoma State University, Stillwater, OK, April 5-6, 2013.
- Organizer of OU Math Day 2011-2013, a day long outreach event of the Department of Mathematics at University of Oklahoma which is attended by students of high schools from all over the state of Oklahoma.
- Co-organizer of TORA III at the University of Oklahoma, Norman, OK, September 28-30, 2012.
- Co-organizer of TORA II at Oklahoma State University, Stillwater, OK April 6-8, 2012.
- “The Riemann Hypothesis or How to be a millionaire doing math ?”, talk at the Math Club at the University of Central Oklahoma, September 20, 2011.
- Co-organizer of TORA I at University of North Texas, Denton, TX September 16-17, 2011.
- “Riemann Hypothesis”, talk at the Math Club at OU, March 2, 2011.
- Co-organizer of the Oklahoma-Texas conference on Automorphic Forms and Representation Theory at University of Oklahoma, Norman, Oct 2-3, 2010.
- Co-organizer of special session titled “Automorphic forms,  $L$ -functions and applicaitons” at the AMS 2010 Spring Eastern Sectional Meeting at New Jersey Institute of Technology, Newark, NJ, May 22 – 23, 2010.
- Participated in the Math Teacher’s Circle for middle-school teachers at AIM on Sept. 17, 2009.
- Ran a session of the San Jose Math Circle (for middle school students), Nov. 4, 2009.
- Referee for papers for *Mathematische Annalen*, *Commentarii Mathematici Helvetici*, *International Journal of Number Theory*, *Mathematics of Computation*, *International journal of open problems in Computer Science and Mathematics*, *International Mathematical Research*

Notices, Journal für die reine und angewandte Mathematik, Mathematische Zeitschrift, Proceedings of the AMS, Journal de Théorie des Nombres de Bordeaux, Research in Number Theory, Hamburg Abhandlungen, Proceedings for the London Mathematical Society and grant proposals for NSA.

- Participated in a panel discussion “Everything you wanted to know about the postdoctorate position” in the graduate student seminar at University of Oklahoma, Feb. 2, 2009.

## Talks and seminars

2019 :

Mar 5 “Algebraic and Analytic aspects of Automorphic forms” ICTS Bangalore, India  
Mar 23 AMS sectional meeting, University of Hawaii at Manoa, Honolulu, HI

2018 :

Sep 11 Number Theory Seminar, IISER, Pune, India  
Jul 27 Number Theory Seminar, Waseda University, Tokyo, Japan  
Feb 14 Number Theory Seminar, UCLA  
Feb 15 Number Theory Seminar, Cal Tech

2017 :

Apr 2 TORA VIII, Oklahoma State University, OK  
Apr 22 AMS sectional meeting, Washington State University, Pullman, WA  
May 6 AMS sectional meeting, Hunter College, City University of New York, NY  
Sep 10 AMS sectional meeting, University of North Texas, Denton, TX

2016 :

May 25 Heilbronn Number Theory seminar, University of Bristol, UK  
July 4 Automorphic forms on metaplectic groups and related topics, IISER, Pune, India  
Dec. 9 Tata Institute of Fundamental Research, Mumbai, India  
Dec. 16 International Conference of The Indian Mathematics Consortium (TIMC) in cooperation with AMS, Banaras Hindu University, Varanasi, India

2015 :

Feb. 5 RIMS, Kyoto, Japan  
Mar. 29 Plenary talk, SERMON XXVII, Winthrop University, Rock Hill, SC  
May 25 Automorphic Forms : Advances and Applications, CIRM, Marseilles, France  
Oct. 15 Number Theory and Algebraic Geometry seminar, Boston College, MA

2014 :

Jan. 15 RIMS, Kyoto, Japan  
Apr. 12 AMS Sectional meeting, Texas Tech University, Lubbock, TX

- July 10 EU/US workshop on automorphic forms and related topics, University of Bristol, UK
- July 15 Workshop on Bianchi and Siegel modular forms, University of Sheffield, UK
- 2013 :
- May 29 Heilbronn Number Theory seminar, University of Bristol, UK
- Oct. 18 AMS Sectional meeting, Washington University, St Louis, MO
- 2012 :
- Apr. TORA II, Oklahoma State University, Stillwater, OK
- 2010 :
- Oct. Number Theory seminar, Texas A & M
- Feb. Colloquim, University of Oklahoma
- 2009 :
- Nov. Special session on Modular Forms and Automorphic Forms, AMS Fall Southeastern Sectional Meeting, Boca Raton, FL
- Oct. Haar Seminar, The Ohio State University
- Sep. Joint OU-OSU Automorphic forms seminar, Norman, Oklahoma
- June Graduate workshop on zeta functions,  $L$ -functions and their applications, Utah Valley University, Orem, Utah
- Feb. Colloquim, Iowa State University
- Jan. Colloquim, Oklahoma State University
- Jan. Colloquim, McGill University
- Jan. Quebec-Vermont Number Theory Seminar, McGill University
- 2008 :
- Oct. Special session on representations of real and  $p$ -adic Lie groups, AMS Fall Central Sectional Meeting, Kalamazoo, MI
- Sep. Representation Theory seminar, University of Oklahoma, Norman
- July Indian Institute of Science, Bangalore, India
- June Number Theory seminar, The Ohio State University
- May Number Theory seminar, University of Wisconsin
- 2007 :
- Nov. Representation Theory seminar, University of Oklahoma, Norman
- Oct. Graduate Student seminar, University of Oklahoma, Norman
- Oct. Special Session of Automorphic forms, AMS Fall Central Sectional Meeting, Chicago
- Jan. Joint OU-OSU Automorphic forms seminar, Stillwater, Oklahoma

2006 :

- Sep. Representation Theory seminar, University of Oklahoma, Norman
- April Number Theory seminar, University of California at San-Diego
- April Number Theory seminar, The Ohio State University
- Feb. Number Theory seminar, University of Wisconsin
- Jan. Number Theory seminar, University of California at Los Angeles

2005 :

- Dec. Conference on “Application of Representation Theory to Analytic Number Theory”, Technion University, Haifa, Israel
- Nov. Number Theory seminar, University of Minnesota
- Sep. Tata Institute of Fundamental Research, Mumbai, India
- Aug. Indian Institute of Technology, Kanpur, India
- March Special Session on  $L$ -functions, AMS Spring Southeastern Sectional Meeting, Western Kentucky University, Bowling Green, KY

2004 :

- Nov. Number Theory seminar, The Ohio State University