
CONTACT INFORMATION	<p>Department of Mathematics University of South Carolina Carolina Coliseum 701 Assembly St. Columbia, SC 29208</p>	<p>Email: shaoyun@mailbox.sc.edu yishaoyun926@gmail.com Webpage: https://people.math.sc.edu/shaoyun/ Office: COL 1005D</p>
EMPLOYMENT	<p>University of South Carolina, Columbia, SC, USA Instructor</p>	<p>Aug 2019 - present</p>
EDUCATION	<p>University of Oklahoma, Norman, OK, USA Ph.D., Mathematics. Advisor: Ralf Schmidt. M.A., Mathematics.</p> <p>University of Science and Technology of China, Hefei, Anhui, China B.S., Mathematics.</p>	<p>May 2014 - May 2019 Aug 2012 - May 2014 Sept 2008 - Jul 2012</p>
RESEARCH INTERESTS	<p>Number Theory, Representation Theory. Specifically, I am interested in classical modular forms, local and global representation theory, L-functions, and the Langlands program.</p>	
PUBLICATIONS & PREPRINTS	<ol style="list-style-type: none"> <i>Classical and adelic Eisenstein series</i> (with Manami Roy and Ralf Schmidt). Submitted, 2021. [arXiv]. <i>Generalizations of Alladi's formula for arithmetical semigroups</i> (with Lian Duan and Ning Ma). Submitted, 2021. [arXiv]. <i>Congruences for dimensions of spaces of Siegel cusp forms and 4-core partitions</i> (with Chiranjit Ray and Manami Roy). The Ramanujan Journal, 17 Aug 2021 (available online). [SharedIt link, arXiv, DOI]. <i>Analogues of Alladi's formula over global function fields</i> (with Lian Duan and Biao Wang). Finite Fields and Their Applications 74 (2021), 101874, 26 pp. [arXiv, DOI]. <i>On counting cuspidal automorphic representations for $\mathrm{GSp}(4)$</i> (with Manami Roy and Ralf Schmidt). Forum Mathematicum 33 (2021), no. 3, 821-843. [arXiv, DOI]. <i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$</i>. The Ramanujan Journal 54 (2021), no. 3, 511-554. [SharedIt link, DOI]. <i>Klingen vectors of level 2 for $\mathrm{GSp}(4)$</i>. Ph.D. Thesis, University of Oklahoma, 2019. [PDF]. 	
PROJECTS ONGOING	<ol style="list-style-type: none"> <i>Siegel modular forms of degree 2 and Klingen level 4</i> (with Manami Roy and Ralf Schmidt). <i>Refinement of the effective Chebotarev density theorem for function fields</i> (with Lian Duan and Ning Ma). $B(\mathfrak{p}^2)$-invariant vectors for $\mathrm{GSp}(4)$. 	

TEACHING
EXPERIENCE

Instructor, Department of Mathematics, University of South Carolina

Instructor of Record

Math 122 Calculus for Business Administration and Social Sciences	Fall 2021
Math 141 Calculus I	Fall 2021
Math 241 Vector Calculus	Fall 2021
Math 546/701I Algebraic Structures I (online)	Summer 2021
Math 122 Calculus for Business Administration and Social Sciences (online)	Spring 2021
Math 141 Calculus I (online)	Spring 2021
Math 122 Calculus for Business Administration and Social Sciences (online)	Fall 2020
Math 546/701I Algebraic Structures I (online)	Summer 2020
Math 142 Calculus II	Spring 2020
Math 242 Elementary Differential Equations	Spring 2020
Math 122 Calculus for Business Administration and Social Sciences	Fall 2019

Graduate Teaching Assistant, Department of Mathematics, University of Oklahoma

Instructor of Record

Math 1743 Calculus I for Business, Life, and Social Sciences	Spring 2019
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Discussion Session Leader

Math 2924 Differential and Integral Calculus II	Fall 2018
Math 2924 Differential and Integral Calculus II	Spring 2018
Math 2423 Differential and Integral Calculus II	Fall 2017

Grader

Fall 2012 - Spring 2017

Calculus; Ordinary differential equations; Linear algebra; Abstract algebra PYTHON
Analysis; Partial differential equations; Discrete mathematics (Capstone)

Tutor

Fall 2013 - Spring 2019

Pre-Calculus; Trigonometry; College Algebra; Business Calculus; Advanced Calculus

SUMMER &
WINTER
SCHOOLS

[Arizona Winter School 2018: Iwasawa Theory](#)

University of Arizona, Tucson, AZ, USA

Mar 3 - 7, 2018

[MSRI Summer School: Automorphic Forms and the Langlands Program](#)

Mathematical Sciences Research Institute (MSRI), Berkeley, CA, USA

Jul 24 - Aug 4, 2017

INVITED TALKS

An equidistribution theorem for cuspidal automorphic representations of $\mathrm{GSp}(4)$, Jan 29, 2021
Sichuan University, Chengdu, Sichuan, China (online)

The equidistribution theorem for a certain family of cuspidal automorphic representations for $\mathrm{GSp}(4)$, Capital Normal University, Beijing, China (online) Nov 14, 2020

An equidistribution theorem for $\mathrm{GSp}(4)$ by counting cuspidal automorphic representations, University of Science and Technology of China, Hefei, Anhui, China (online) Nov 12, 2020

On counting automorphic representations and its connection to an equidistribution theorem for $\mathrm{GSp}(4)$, Algebra Seminar, University of North Texas, Denton, TX, USA (online) Oct 23, 2020

An equidistribution theorem for cuspidal automorphic representations for $\mathrm{GSp}(4)$, Oct 22, 2020
Shandong University, Jinan, Shandong, China (online)

A bridge between modular forms theory and representation theory,

Apr 16, 2019

Cameron University Math Seminar Series, Cameron University, Lawton, OK, USA

	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$,</i> Algebraic Geometry and Number Theory Seminar, Clemson University, Clemson, SC, USA	Feb 26, 2019
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$,</i> Lie Groups Seminar, Oklahoma State University, Stillwater, OK, USA	Feb 13, 2019
CONTRIBUTED TALKS	<i>Siegel modular forms of level 4</i> PALmetto Joint Arithmetic, Modularity, and Analysis Series III (online)	Sept 26, 2021
	<i>Dimension formulas of Siegel cusp forms for certain congruence subgroups</i> Women in automorphic forms, Bielefeld University (online)	Sept 21, 2021
	<i>On counting cuspidal automorphic representations of $\mathrm{GSp}(4)$</i> New Developments in Number Theory (online)	Jun 1, 2021
	<i>On counting cuspidal automorphic representations of $\mathrm{GSp}(4)$</i> Mid-Atlantic Seminar On Numbers V (online)	Mar 28, 2021
	<i>Analogues of Alladi's formula over global function fields</i> PALmetto Joint Arithmetic, Modularity, and Analysis Series II (online)	Dec 6, 2020
	<i>On counting cuspidal automorphic representations for $\mathrm{GSp}(4)$</i> Front Range Number Theory Day (online)	Sept 26, 2020
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$</i> Ninth Annual Upstate Number Theory Conference, Cornell University	Apr 28, 2019
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$</i> TORA X, University of North Texas	Apr 6, 2019
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$</i> 33rd Automorphic Forms Workshop, Duquesne University	Mar 10, 2019
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$</i> Graduate Algebra Symposium, University of Oklahoma	Mar 2, 2019
	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4, F)$</i> PANTS XXXI, University of South Carolina	Dec 8, 2018
	<i>$\mathrm{Kl}(\mathfrak{p}^2)$ vectors for $\mathrm{GSp}(4, F)$</i> TORA IX, University of Oklahoma	Apr 7, 2018
	<i>Dimensions of $\mathrm{Kl}(\mathfrak{p}^2)$-invariant vectors for $\mathrm{GSp}(4, F)$</i> 31st Automorphic Forms Workshop, East Tennessee State University	Mar 8, 2017
	<i>Dimensions of $\mathrm{Kl}(\mathfrak{p}^2)$-invariant vectors for irreducible non-supercuspidal representations of $\mathrm{GSp}(4, F)$</i> Graduate Algebra Symposium, University of North Texas	Nov 5, 2016
	<i>Dimensions of $\mathrm{Kl}(\mathfrak{p}^2)$-invariant vectors for Iwahori-spherical representations of $\mathrm{GSp}(4, F)$</i> TORA VII, University of North Texas	Apr 10, 2016
	<i>Dimensions of Parahori-invariant vectors Iwahori-spherical representations of $\mathrm{GSp}(4)$</i> Graduate Algebra Symposium, University of Oklahoma	Mar 5, 2016
	<i>Dimensions of spaces of Parahori-invariant vectors for Iwahori-spherical representations of $\mathrm{GSp}(4)$</i> TORAS I, University of Oklahoma	Mar 28, 2015
POSTER SESSIONS	<i>Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$ and applications</i> Boston University-Keio University Workshop in Number Theory 2019, Boston University	Jun 24, 2019

Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$ and applications Apr 6, 2019
 TORA X, University of North Texas

Dimensions of $\mathrm{Kl}(\mathfrak{p}^2)$ -invariant vectors for Iwahori-spherical representations of $\mathrm{GSp}(4, F)$
 TORA VII, University of North Texas Apr 10, 2016

DEPARTMENTAL University of South Carolina:

SEMINAR TALKS *On dimensions of the spaces of Siegel modular forms,*
 Algebra, Geometry, and Number Theory Seminar (online) Oct 29, 2021

On counting cuspidal automorphic representations and an equidistribution theorem for $\mathrm{GSp}(4)$,
 Algebra, Geometry, and Number Theory Seminar (online) Oct 30, 2020

Klingen vectors of level 2 for $\mathrm{GSp}(4)$, Number Theory Seminar Oct 31, 2019

University of Oklahoma:

Klingen \mathfrak{p}^2 vectors for $\mathrm{GSp}(4)$, Algebra and Representation Theory Seminar Nov 30, 2018

$\mathrm{Kl}(\mathfrak{p}^2)$ vectors for $\mathrm{GSp}(4, F)$, Algebra and Representation Theory Seminar Aug 20, 2018

An Introduction to $\mathrm{GSp}(4)$, Student Algebra Seminar Mar 26, 2018

An Introduction to Modular Form, Student Algebra Seminar Oct 26, 2017

Induced modules, Student Algebra Seminar Apr 7, 2017

An introduction to Saito–Kurokawa Lifting, Student Algebra Seminar Sept 26, 2016

Automorphic representations, Student Algebra Seminar Apr 26, 2016

Representations of Weil Groups, Student Algebra Seminar Feb 11, 2016

Weil Groups and Representations, Student Algebra Seminar Feb 4, 2016

Projective varieties, Student Algebra Seminar Dec 3, 2015

Affine varieties and Algebraic varieties, Student Algebra Seminar Oct 22, 2015

Automorphisms and derivations of Lie algebras, Student Algebra Seminar May 1, 2015

Dimensions of spaces of Parahoric-invariant vectors for Iwahoric-spherical representations of $\mathrm{GSp}(4)$, Algebra and Representation Theory Seminar Apr 3, 2015

Haar measure, Student Algebra Seminar Sept 17, 2014

Haar measure, convolution, and characters of admissible representations, Part 2, Student Algebra Seminar Apr 24, 2014

Haar measure, convolution, and characters of admissible representations, Student Algebra Seminar Apr 17, 2014

Ramification and Bases, Part 2, Student Algebra Seminar Feb 27, 2014

Ramification and Bases, Student Algebra Seminar Feb 20, 2014

The Gelfand Transform, Student Algebra Seminar Oct 17, 2013

Banach Algebras and the Gelfand Transform, Student Algebra Seminar Oct 10, 2013

ACADEMIC Reviewer for *Mathematical Reviews* (MR) of AMS Dec 2020 - present
 SERVICE

Mathematics Department (University of South Carolina):

<i>Lower division advising</i> for undergraduate students of math major	Fall 2019 - present
<i>Course transfer equivalency duties</i> (Course evaluations)	Fall 2019 - present
<i>Volunteer</i> for The 34th Annual High School Mathematics Contest	Jan 25, 2020
<i>Volunteer</i> for Set-Up Team in Math Picnic (Events Committee)	2019
<i>Volunteer</i> for Set-Up Team in End-of-Semester Holiday Drop In (Events Committee)	2019

Mathematics Department (University of Oklahoma):

<i>Volunteer</i> for The 4th Annual Meeting of SIAM Central States Section	2018
<i>Volunteer</i> for TORA IX	2018
<i>Organizer</i> of the Student Algebra Seminar	2015 - 2016
<i>Volunteer</i> for 20th Midwest Geometry Conference	2015
<i>Volunteer</i> for OU MATH DAY	2013 - 2018

**AWARDS,
HONORS**

John Clark Brixey Graduate Scholarship – <i>Awarded annually to PhD Students, Math. Department, OU</i>	2016
Teaching Assistantship – <i>Math. Department, University of Oklahoma</i>	2012 - 2019
Outstanding Student Scholarship – <i>Awarded annually to undergraduate students, Math. Department, USTC</i>	2010

**CONFERENCES,
WORKSHOPS
ATTENDED
(*: ONLINE)**

PALmetto Joint Arithmetic, Modularity, and Analysis Series III*	Sept 25 - 26, 2021
Women in automorphic forms* <i>Bielefeld University</i>	Sept 20-22, 2021
miniMAGNTS 2021*	Aug 11, 2021
Theta Series: Representation Theory, Geometry, and Arithmetic* <i>in honor of Steve Kudla 70th birthday</i>	Jul 5 - 9, 2021
Around Frobenius distributions and related topics II*	Jun 28 - 29, 2021
Curves over Finite Fields: Past, Present and Future*	May 25 - 29, 2021
Rational Points and Galois Representations* <i>University of Pittsburgh</i>	May 10 - 12, 2021
Front Range Number Theory Day*	Apr 24, 2021
Mid-Atlantic Seminar On Numbers V*	Mar 27 - 28, 2021
PALmetto Joint Arithmetic, Modularity, and Analysis Series II*	Dec 5 - 6, 2020
2020 Paul J. Sally, Jr. Midwest Representation Theory Conference*	Oct 16 - 18, 2020
Number Theory Down Under 8 (NTDU8)*	Oct 6 - 8, 2020
Québec-Maine Number Theory Conference*	Sept 26 - 27, 2020
Front Range Number Theory Day*	Sept 26, 2020
PALmetto Joint Arithmetic, Modularity, and Analysis Series*	Sept 19 - 20, 2020
Chicago Number Theory Day (CNTD 2020)*	Jun 20, 2020

Online Conference in Automorphic Forms* Automorphic Forms in Budapest 2020	Jun 01 - 05, 2020
Cross Atlantic Representation Theory and Other topics Online*	May 29 - 31, 2020
S. I. Adian memorial conference, Moscow*	May 26 - 27, 2020
Conference on Representation Theory and Algebraic Analysis* <i>in honor of Joseph Bernstein on the occasion of his 75th birthday</i>	May 11 - 14, 2020
DG methods in commutative algebra and representation theory*	May 2 - 3, 2020
Front Range Number Theory Day*	Apr 25, 2020
AGONIZE: Arithmetic Geometry is ONline In Zoom, Everyone*	Mar 25, 2020
PANTS XXXIII: Palmetto Number Theory Series XXXIII <i>in celebration of the 60th birthday of Michael Filaseta</i> Clemson University, Clemson, SC, USA	Dec 14 - 15, 2019
Modular Forms, Arithmetic, and Women in Mathematics (MAAIM) Emory University, Atlanta, GA, USA	Nov 1 - 3, 2019
PANTS XXXII: Palmetto Number Theory Series XXXII University of North Carolina at Charlotte, Charlotte, NC, USA	Sept 21 - 22, 2019
Boston University-Keio University Workshop in Number Theory 2019 Boston University, Boston, MA, USA	Jun 24 - 28, 2019
49th John H. Barrett Memorial Lectures: Recent Developments in Number Theory University of Tennessee, Knoxville, TN, USA	May 28 - 30, 2019
Ninth Annual Upstate Number Theory Conference Cornell University, Ithaca, NY, USA	Apr 27 - 28, 2019
TORA X: Texas–Oklahoma Representations and Automorphic Forms X University of North Texas, Denton, TX, USA	Apr 5 - 7, 2019
Hawaii Number Theory 2019 (HINT 2019) University of Hawai'i at Mānoa, Honolulu, HI, USA	Mar 18 - 21, 2019
33rd Automorphic Forms Workshop Duquesne University, Pittsburgh, PA, USA	Mar 6 - 10, 2019
Graduate Algebra Symposium(Joint with UTA, UNT, and OU) University of Oklahoma, Norman, OK, USA	Mar 2, 2019
JMM 2019: Joint Mathematics Meetings 2019 The Baltimore Convention Center, Baltimore, MD, USA	Jan 17 - 19, 2019
PANTS XXXI: Palmetto Number Theory Series XXXI University of South Carolina, Columbia, SC, USA	Dec 8 - 9, 2018
TORA IX: Texas–Oklahoma Representations and Automorphic Forms IX University of Oklahoma, Norman, OK, USA	Apr 7 - 8, 2018
The 2017 Paul J. Sally, Jr. Midwest Representation Theory Conference <i>Honoring the 70th Birthday of Freydoon Shahidi</i> Purdue University, West Lafayette, IN, USA	Oct 20 - 22, 2017
TORA VIII: Texas–Oklahoma Representations and Automorphic Forms VIII Oklahoma Sate University, Stillwater, OK, USA	Mar 31 - Apr 2, 2017

31st Automorphic Forms Workshop East Tennessee State University, Johnson City, TN, USA	Mar 6 - 9, 2017
Graduate Algebra Symposium(Joint with UTA, UNT, and OU) University of North Texas, Denton, TX, USA	Nov 5, 2016
TORA VII: Texas–Oklahoma Representations and Automorphic Forms VII University of North Texas, Denton, TX, USA	Apr 8 - 10, 2016
Graduate Algebra Symposium(Joint with UTA, UNT, and OU) University of Oklahoma, Norman, OK, USA	Mar 5, 2016
TORAS I: Texas-Oklahoma Representations and Automorphic Forms for Students University of Oklahoma, Norman, OK, USA	Mar 28 - 29, 2015
Graduate Algebra Symposium(Joint with UTA, UNT, and OU) University of Oklahoma, Norman, OK, USA	Oct 4, 2014
TORA VI: Texas—Oklahoma Representations and Automorphic Forms VI University of Oklahoma, Norman, OK, USA	Mar 7 - 9, 2014
Graduate Algebra Symposium(Joint with UTA, UNT, and OU) University of North Texas, Denton, TX, USA	Nov 9, 2013

MINI COURSES ONLINE	Trimester Program on Harmonic Analysis and Analytic Number Theory Organizers: Valentin Blomer, Farrell Brumley, Philip Gressman, Marina Iliopoulou, Lillian B. Pierce	May 3 - Aug 20, 2021
	Spring School towards a mod p Langlands correspondence Instructors: Christophe Breuil, Florian Herzig, Yongquan Hu, Stefano Morra, Benjamin Schraen	Apr 26 - 30, 2021
	Fourier methods in combinatorial number theory Instructor: Sean Prendiville, Lancaster University	Nov 4 - Dec 9, 2020
	AGITTOC 2020: Algebraic Geometry in the Time of COVID Math 216: Foundations of Algebraic Geometry Instructor: Ravi Vakil, Stanford University	Jun 27 - Sept 12, 2020
	Tianyuan Mathematical Center in Southeast China (TMSE) Minicourse Exponential sums over finite fields, Instructor: Daqing Wan (UCI) The evolvement of Galois’s idea in number theory: from Galois theory to Galois representations, Instructor: Yi Ouyang (USTC) Introduction to modular form, Instructor: Shanwen Wang (RUC)	Aug 9 - 17, 2020
	Torsion subgroups of modular Jacobian varieties over abelian fields Instructor: Yuan Ren, Sichuan Normal University (@ USTC)	Jul 20 - 31, 2020
	Distribution of prime numbers Instructor: Jie Wu, Université Paris-Est Créteil (@ Soochow University)	May 1 - 3, 2020

TRAININGS	University of South Carolina: CAS Faculty Development Program (FDP) <i>–Introduction to the resources of the National Center for Faculty Development and Diversity, other practical tips and information needed to be successful in their research, teaching, and service endeavors.</i>	Fall 2019 - Spring 2020
	New Faculty Academy (NFA) <i>–Certificate obtained by participating in six or more NFA sessions scheduled during the year</i>	Fall 2019 - Spring 2020
	Online short course: Technology for Online Teaching and Learning <i>–Certificate obtained by completing the 6-week online course on integrating technology for online course delivery to transform learning environments</i>	Oct 29 - Dec 9, 2019

2019 Oktoberbest: A Celebration of Teaching Oct 18, 2019
–*One-day symposium focused on sharing best practices in teaching.*

University of Oklahoma:

Endorsement in Preparation for Teaching Undergraduate Mathematics 2019
–*Certificate obtained by completing 6 credit hours of course work in undergraduate mathematics education and teaching atleast one class as the instructor of record*

Academic Writing for Multilingual Graduate Students Winter 2019
–*Course certificate obtained by enrolling in a two weeks graduate course*

The International Instructor Training Course Fall 2018
–*Course certificate obtained by enrolling in a semester graduate course*

The ETCS English Fast Track Course Summer 2018
–*Course certificate obtained by enrolling in a two weeks graduate course*

Development for International Teaching Assistant Training 2012
–*Mandatory teacher training program for international students*

INVITED VISITS Visitor at The Division of Physics, Mathematics and Astronomy, Caltech Jun 1-9, 2019

UNDERGRAD Chinese Academy of Sciences (CAS), Beijing, China Summer, 2011
SUMMER CAMP

COMPUTER \LaTeX , Mathematica, HTML, CoCalc, SAGE, Magma, PYTHON
SKILLS

LANGUAGES Chinese (native), English (fluent)