

# Siddhi S. Pathak

## Employment

- Jan. 2022 - **Assistant Professor**, *Chennai Mathematical Institute*.  
Present
- Aug. 2021 - **INSPIRE Faculty Fellow**, *Chennai Mathematical Institute*.  
Dec. 2021
- Aug. 2019 - **S. Chowla Assistant Research Professor**, *Pennsylvania State University*.  
Jun. 2021

## Education

- 2015–2019 **Ph.D.**, *Queen's University*, Kingston.  
Advisor: M. Ram Murty  
Special values of  $L$ -series, periodic coefficients and related themes
- 2014–2015 **M.Sc.**, *Queen's University*, Kingston.  
Advisor: M. Ram Murty  
Thesis: The Chowla problem and its generalizations.
- 2011–2014 **B.Sc. (Hons.)**, *Chennai Mathematical Institute (CMI)*, Chennai, India.  
Mathematics and Computer Science.

## Research Interests

Transcendental and analytic number theory, Modular forms and elliptic functions,  
Number theory in function fields

## Publications

- A simple proof of Burnside's criterion for all groups of order  $n$  to be cyclic, *The Mathematics Student*, Vol. 85, No.s 1-2, January-June (2016), 97-102.
- On a conjecture of Livingston, *Canadian Mathematics Bulletin*, Vol. 60 - 1 (2017), 184-195.
- Evaluation of the Quadratic Gauss sum (with M. Ram Murty), *The Mathematics Student*, Vol. 86, No.s 1-2, January-June (2017), 139-150.
- A vanishing criterion for Dirichlet series with periodic coefficients (with T. Chatterjee and M. Ram Murty), *Contemporary Mathematics*, Vol. 701 (2018), 69-80.
- Special values of derivatives of  $L$ -series and generalized Stieltjes constants (with M. Ram Murty), *Acta Arithmetica*, Vol. 184, Issue 2 (2018) 127-138.

- Distribution and Non-vanishing of special values of  $L$ -series attached to Erdős functions, *International Journal of Number Theory*, Vol. 15, No. 7 (2019) 1449-1462.
- Relations between certain power series and functions involving zeros of zeta functions (with M. Ram Murty), *Proceedings of Number Theory: Arithmetic, Diophantine and Transcendence*, IIT Ropar, *RMS Lecture Notes Series*, Vol. 26 (2020) 203-222.
- Convolution of values of the Lerch zeta-function (with M. Ram Murty), *Journal of Number Theory*, Vol. 217 (2020) 1-22.
- A note on values of Dedekind zeta-function at odd positive integers (with M. Ram Murty), *International Journal of Number Theory*, Vol. 17 No. 8 (2021) 1753-1764.
- Transcendence of infinite series over lattices, *The Ramanujan Journal*, Vol. 56 (2021) 971-992.
- The Okada space and vanishing of  $L(1, f)$  (with M. Ram Murty), *Functiones et Approximatio*, Vol. 66 No. 1 (2022) 35-57.
- On special values of Dirichlet series with periodic coefficients (with Abhishek Bharadwaj), *Journal of Number Theory*, Vol. 238 (2022) 978-1011.
- Linear independence of values of the  $q$ -exponential and related functions (with Anup Dixit and Veekesh Kumar), *to appear in Bulletin of Australian Math. Society*.
- A function related to the Mordell-Weil rank of elliptic curves (with Anup Dixit and Ram Murty), *submitted*.
- A note on transcendence of special values of functions related to modularity (with Tapas Bhowmik), *submitted*.
- Rank stability of elliptic curves in certain metabelian extensions (with Anwesh Ray), *submitted*.

## Awards & Fellowships

**INSPIRE Faculty Fellowship**, *Government of India*, 2021-2026.

**Early Career Invited Lecture Award**, *University of British Columbia, Canada*, March 2020.

**US Junior Oberwolfach Fellow**, *Mathematisches Forschungsinstitut Oberwolfach*, November 2019.

**Ontario Graduate Scholarship**, 2018-19.

**Duncan and Urella Carmichael Fellowship**, *Queen's University*, 2016-17, 2017-18.

**Winner - 3 minute thesis competition**, *Department of Mathematics and Statistics, Queen's University*, 2017.

**INSPIRE Scholarship**, *Government of India*, 2011-2014.

## Refereeing for Journals

- IMRN - International Mathematics Research Notices
- Proceedings of the Royal Society of Edinburgh: Section A

- International Journal of Number Theory
- Canadian Math Bulletin
- Journal of the Ramanujan Mathematical Society
- Proceedings of Mathematical Sciences
- Mathematical methods in Applied Sciences
- Czechoslovak Mathematical Journal
- The Mathematics Student, Indian Mathematical Society

## Teaching Experience at CMI

**ANT**, *Analytic Number Theory*, Spring 2024.

**CPAN**, *Graduate Complex Analysis*, Fall 2023.

**DEQN**, *Differential Equations*, Spring 2023.

**MIT**, *Methods in Irrationality and Transcendence*, Fall 2022.

**MODF**, *Introduction to Modular Forms*, Spring 2022.

## Talks

- Invited speaker in **AMS Southeastern Sectional Meeting**, Mobile AL, USA (October 2023)
- Invited speaker in AOWM (Asian-Oceanic Women in Mathematics Inaugural Conference, **ICTS** Bangalore, India (April 2023)
- Invited speaker in Workshop and Conference in Number Theory, **NISER** Bhubaneswar, India (February 2023)
- Invited speaker in The Ramanujan Math Society Symposium, Chennai, India (December 2022)
- Speaker in Leuca - 2022, Conference celebrating birthdays of C. Levesque, D. Roy and M. Waldschmidt, **San Gregorio**, Patú, Italy.
- Invited speaker in the Number Theory Seminar, **University of Rochester**, USA (March 2022)
- Invited speaker in the Number Theory Seminar, **University of British Columbia**, Canada (March 2022)
- Invited speaker in SFB-Higher Invariants Seminar, **University of Regensburg**, Germany (January 2022)
- Invited speaker in Special functions and Number Theory seminar, online (May 2021)
- Invited speaker in GAUSS, **University of Iowa**, Iowa City IA USA (March 2021)
- Invited speaker in Number Theory Seminar, **University of Wisconsin-Madison**, Madison WI USA (March 2021)
- Invited speaker in Number Theory Seminar, **University of Mississippi**, Oxford MI USA (March 2021)
- Invited speaker in the Number Theory Seminar, **IMSc**, Chennai, India (January 2021)

- Invited speaker in the **Fields Online Number Theory Seminar**, Fields Institute, Toronto (January 2021)
- Invited speaker in Students' Seminar, **TIFR**, Mumbai, India (December 2020)
- Invited speaker in Number Theory Seminar, **Queen's University**, Canada (November 2020)
- Invited speaker in Number Theory Seminar, **Towson University**, Towson, Maryland USA (November 2020)
- Speaker in **Algebra and Number Theory Seminar**, Penn State, State College, USA (November 2020)
- Invited speaker in Number Theory Seminar, **University of British Columbia**, Vancouver BC Canada (March 2020)
- The Early Career Award Lecture in **Colloquium**, UBC, Vancouver BC Canada (March 2020)
- Invited speaker in Number Theory Seminar, **University of Waterloo**, Waterloo ON Canada (March 2020)
- Invited speaker in **CMS Winter Meeting**, Toronto, Canada (December 2019)
- Invited speaker in **Palmetto Number Theory Series 32**, University of North Carolina, Charlotte NC (September 2019).
- Speaker in **Algebra and Number Theory Seminar**, Penn State, State College PA (September 2019).
- Invited speaker in Session on Experimental Mathematics in Number Theory, Analysis and Combinatorics, **AMS Spring Southeastern Sectional Meeting**, Auburn AL. (March 2019)
- Speaker in **Canadian Number Theory Association Conference**, Laval University, Quebec City. (July 2018)
- Invited speaker in Session on Number Theory, **Canadian Mathematics Society Summer Meeting**, University of New Brunswick, Fredericton. (June 2018)
- Invited speaker in **Number Theory: Arithmetic, Diophantine and Transcendence**, Conference celebrating 130th birth anniversary of S. Ramanujan, IIT Ropar, Rupnagar, India. (December 2017)
- Speaker in **Canadian Mathematics Society Winter Meeting**, University of Waterloo, Waterloo, Canada. (December 2017)
- Speaker in **Mathematical Congress of the Americas**, McGill University, Montreal, Canada. (July 2017)
- Invited speaker in Colloquium, **Chennai Mathematical Institute**, Chennai, India. (May 2017)
- Invited speaker in **AARMS/DMSGSA Summer School Student Conference**, Dalhousie University, Halifax, Canada. (July 2016)
- Invited speaker in Colloquium, **Institute of Mathematical Sciences**, Chennai, India. (June 2015)

## Participation in Workshops/Conferences

- BIRS-CMI Workshop "New Directions in Rational Points", Chennai Mathematical Institute, India (January 2024)
- La grandezza dei punti piccoli, A conference celebrating F. Amoroso's 60<sup>th</sup> birthday, University of Pisa, Italy (May 2022)
- Hausdorff Center for Mathematics, Workshop on The Circle Method, Bonn-Germany (2021)
- Oberwolfach Workshop on Analytic Number Theory, Oberwolfach, Germany. (November 2019)
- Advanced Instructional School on Class Field Theory, Chennai Mathematical Institute, Chennai, India. (May 2017)
- 2016 Fields Medal Symposium, in honour of Manjul Bhargava, Fields Institute, Toronto, Canada. (November 2016)
- AARMS (Atlantic Association for Research in Mathematical Sciences) Summer School 2016, attended a month long courses on Stable polynomials: applications to graphs, matrices and probability and Introduction to special functions, Dalhousie University, Halifax, Canada. (July-August 2016)
- Conference on Geometry, Algebra, Number theory and their Information Technology Applications (GANITA), in honour of V. Kumar Murty, Fields Institute, Toronto, Canada. (June 2016)
- A conference in number theory, in honour of R. Balasubramanian, Institute of Mathematical Sciences, Chennai, India. (December 2015)
- Advanced Instructional School on Analytic Number Theory, KIIT, Bhubaneswar, India. (June 2015)
- A conference on analytic theory of automorphic forms, in honour of M. Ram Murty, Institute of Mathematical Sciences, Chennai, India. (December 2013)

## Organization & Leadership

- BIRS-CMI Workshop **Local co-organizer**, *New Directions in Rational Points*, Chennai Mathematical Institute, January 8-12, 2024.
- Chennai-Tirupati N. T. Conference **Co-organizer**, *An intercity number theory conference*, Chennai Mathematical Institute, February 11-12, 2023.
- AMS Special Session **Co-organizer**, *Special Session on "Analytic Number Theory"*, AMS Fall Eastern Sectional Meeting, October 3-4, 2020.
- Strength in Numbers **Co-organizer**, *A graduate workshop in number theory and related areas*, Queen's University, May 11-12, 2018.
- Queen's University **President**, *Graduate Mathematics Society*, 2017-18.
- Organizer**, *Number Theory Seminar*, Summer 2018.

## Outreach & Community service

- Coordinator for the AOWM - Asian Oceanian Women in Mathematics
- Invited interactive session under the Wonder Girls initiative with school girls about pursuing career in Mathematics.(2021)
- Helped create and maintain the online database for the graduate student library at Queen's university. (2016-17)
- Tutor at Math Quest: Queen's Math Camp for high school girls. (2015)