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### Personal Information

Name Jyothsnaa Sivaraman  
Gender Female  
Nationality Indian  
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### Employment

1 Mar 2024 – **Assistant Professor, Grade I**, *Indian Institute of Science Education and Research*,  
Present Thiruvananthapuram, India  
15 May 2023 **INSPIRE Faculty fellow**, *Indian Statistical Institute*, Bangalore, India  
– 29 Feb 2024  
Mar 2022 – **NBHM Postdoctoral fellow**, *Chennai Mathematical Institute*, Chennai, India  
12 May 2023  
Mar 2021 – **Postdoctoral fellow**, *Chennai Mathematical Institute*, Chennai, India  
Feb 2022 Mentor: Prof. P. Rath.  
Aug 2019 – **Postdoctoral fellow**, *Department of Mathematics, University of Toronto*, Toronto,  
Jan 2021 Canada  
Mentor: Prof. V. Kumar Murty.

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### Education

2016–2019 **Senior Research Fellow**, *The Institute of Mathematical Sciences*, Chennai, India,  
Completed Doctorate in Mathematics  
Thesis title: On Euclidean ideal classes in abelian extensions,  
Thesis advisor: Prof. Sanoli Gun.  
2014–2016 **Junior Research Fellow**, *The Institute of Mathematical Sciences*, Chennai, India,  
Completed Master of Science in Mathematics  
Master's thesis title: Aspects of Diophantine approximation,  
Thesis advisor: Prof. Sanoli Gun.  
2008–2012 **Bachelor of Engineering**, *Birla Institute of Technology and Science, K.K.Birla Goa campus*, Goa, India  
Specialized in Electrical and Electronics.

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### Research Interest

Analytic aspects of algebraic numbers.

## Algebraic Number Theory

### Sieve Methods

Applications of sieve methods to problems in algebraic number theory.

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## Publications/ Preprints

1. **An application of counting ideals in ray classes**, S. Gun, O. Ramaré, J. Sivaraman. (To appear in Acta Arithmetica)
2. **A note on the two variable Artin's conjecture**, S. Hazra, M. Ram Murty, J. Sivaraman, Journal of Number Theory, 262 (2024), 161-185
3. **On Markoff type surfaces over number fields and the arithmetic of Markoff numbers**, S. Kim, D. Schindler, J. Sivaraman, Research Directions in Number Theory: Women in Numbers V, Eds. A. Bucur, W. Ho, R. Scheidler, Association for Women in Mathematics Series, Springer Cham (2024), 271-293
4. **Explicit upper bounds on the average of Euler-Kronecker constants of narrow ray class fields**, N. Kandhil, R. Lunia, J. Sivaraman, Research in Number Theory 9(2023), Paper no: 69.
5. **Counting ideals in ray classes**, S. Gun, O. Ramaré, J. Sivaraman, Journal of Number Theory 243 (2023), 13–37.
6. **Euclidean ideal classes in Galois number fields of odd prime degree**, V. Kumar Murty, J. Sivaraman, Research in Number Theory 8 (2022), Paper no: 51.
7. **Primitive roots for Pjateckij-Šapiro primes**, J. Sivaraman, Journal de Theorie des Nombres de Bordeaux, 33 (2021), no. 1, 83-94.
8. **On existence of Euclidean ideal classes in real cubic and quadratic fields with cyclic class group**, S. Gun, J. Sivaraman, Michigan Mathematical Journal, 69 (2020), no. 2, 429-448.
9. **On Euclidean ideal classes in certain Abelian extensions**, J.-M. Deshouillers, S. Gun, J. Sivaraman, Mathematische Zeitschrift, 296 (2020), no. 1 - 2, 847-859.
10. **Existence of Euclidean ideal classes beyond certain rank**, J. Sivaraman, Journal of Ramanujan Mathematical Society, 34 (2019), no. 4, 427-432.
11. **Representing ideal classes of ray class groups by product of prime ideals of small size**, J.-M. Deshouillers, S. Gun, O. Ramaré, J. Sivaraman. (Submitted)
12. **On the refined Koblitz conjecture**, S. Dey, A. Saha, J. Sivaraman, A. Vatwani. (Submitted)
13. **On the existence of near-primitive roots**, J. Sivaraman. (In preparation)
14. **On Gerth's heuristics for certain quadratic extensions of a Galois number field of class number 1**. C. G. K. Babu, R. Bera, B. Sury, J. Sivaraman. (In preparation)

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## Teaching Experience

As instructor

Course Instructor for Introduction to Sieve methods, at the Chennai Mathematical Institute, Chennai, India, Jan 3, 2023 - May 12, 2023 (Course for third year B. Sc students and M. Sc. students)

Course Instructor for Algebraic number theory, at the Chennai Mathematical Institute, Chennai, India, Sept 23 - Dec 14, 2021 - Taught jointly with Prof. P. Rath (Course for second and third year B. Sc students)

Course Instructor for MAT223F : Linear algebra, at the University of Toronto, Toronto, Canada, Sept 10 - Dec 20, 2020. (Course for second year students in Arts and Sciences)

Course Instructor for MAT223S : Linear algebra, at the University of Toronto, Toronto, Canada, Jan 6 - Apr 25, 2020. (Course for second year students in Arts and Sciences)

Course instructor for MAT188F : Linear algebra held at the University of Toronto, Toronto, Canada, Sept 1 - Dec 25, 2019. (Course for first year Engineering students)

### As Tutorial assistant

Tutorial Assistant for Algebra and Complex analysis at Annual Foundation School - I, held at Pondicherry University, Pondicherry, India, Jun 6 - 11, 2022. (Course for graduate students)

Tutorial Assistant for a course in Linear algebra, held at the Chennai Mathematical Institute, Chennai, India, Aug 1-Nov 30, 2017. (Course for first year B. Sc students)

Tutorial Assistant at Advanced Instructional School on Class field theory, held at the Chennai Mathematical Institute, Chennai, India, May 8-27, 2017. (Course for doctoral students)

Tutorial Assistant for a course in Algebra II - Galois theory, held at The Institute of Mathematical Sciences, Chennai, India, Jan 1-Apr 30, 2017. (Course for graduate students)

Tutorial Assistant for Refresher course on Algebraic number theory for college teachers, held at Kerala School of Mathematics, Kozhikode, India Feb 9-12, 2017. (Course for college teachers)

Tutorial Assistant for a course on Complex analysis, held at Chennai Mathematical Insitute, Chennai, India Jan 1-Apr 30, 2016. (Course for second year B. Sc students)

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### Invited talks

Delivered a talk at the Inaugural meeting of Asian-Oceanian Women in Mathematics (AOWM) on the 25th Apr 2023.

Delivered a talk at the PIMS Collaborative Research Group weekly seminar on the 15th Mar 2023, online.

Delivered a talk at the Chennai-Tirupati number theory seminar on the 12th Feb 2023 at the Chennai Mathematical Institute.

Delivered a talk on 29th Dec 2022 at the 88th Annual conference of the Indian Mathematical Society held at Birla Institute of Technology, Mesra, Ranchi, India.

Delivered a talk on 31st Aug 2021 at the Women in Numbers 5 conference held online.

Delivered a talk on 12th May 2021 at the seminar of the Indian number theory working group, Institute of Mathematical Sciences, Chennai, India.

Delivered a talk on 12th Mar 2021 at the Queen's University number theory seminar, Queen's University, Kingston, Canada.

Delivered a talk on 3rd Oct 2020 at the American Mathematical Society Fall sectional meeting held online at the Pennsylvania State University, Pennsylvania, USA.

Delivered a talk on 14th Feb 2019 at the Indo-Japan meeting held at the Institute of Mathematical Sciences, Chennai, India.

Delivered a talk on 18th Jan 2019 at the Indo-French conference held at the Institute of Mathematical Sciences, Chennai, India.

Delivered a talk on 4th Jan 2019 at the conference on Diophantine approximation, transcendence, topological dynamics and topics in related areas of number theory and combinatorics held at Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, Kolkata, India.

Delivered a talk on 17th Dec 2018 at the Inter-city number theory seminar held at Indian Institute of Science Education and Research, Tirupati, India.

Delivered a talk on 14th Oct 2018 at the Workshop on modular forms held at Kerala School of Mathematics, Kozhikode, India.

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## Other Activities

### Conferences organised

1. Organised a conference titled "Modular forms : in honour of Prof. B. Ramakrishnan's 60th birthday" jointly with R. Lunia and B. Paul.
2. Organised a Working Group Meeting in Number Theory (17th-19th July 2024), at IISER Thiruvananthapuram, jointly with Prof. S. Gun.

### Academic visits

International Center for Theoretical Sciences (ICTS - TIFR), Bangalore, India during Apr 24-28, 2023.

Queen's University, Kingston, Ontario, Canada on Feb 19, 2020.

Brock University, St. Catharines, Ontario, Canada on Jan 10, 2020.

Brock University, St. Catharines, Ontario, Canada on Oct 24, 2019.

Harish-Chandra Research Institute, Allahabad, India during Sep 22-Oct 7, 2018.

Harish-Chandra Research Institute, Allahabad, India during Dec 5-13, 2017.

Institut de Mathématiques de Jussieu - Paris Rive Gauche, Paris, France during Jul 3-31, 2017.

Harish-Chandra Research Institute, Allahabad, India during Jan 22-29, 2017.

### Conferences attended

Inaugural meeting of Asian-Oceanian Women in Mathematics (AOWM) held at International Center for Theoretical Sciences (ICTS - TIFR), Bangalore, India during Apr 24-28, 2023.

Balu Fest held online at the Institute of Mathematical Sciences during Mar 12-18, 2021.

American Mathematical Society Fall sectional meeting held online at the Pennsylvania State University during Oct 3-4, 2020.

Women in Numbers 5 held in Canada, 2020

Canadian Mathematical Society winter meeting held in Toronto, Canada during Dec 6-9, 2019.

Indo-Japan meeting held at the Institute of Mathematical Sciences, Chennai, India during Feb 13-15, 2019.

Indo-French conference held at the Institute of Mathematical Sciences, Chennai, India during Jan 16-18, 2019.

Workshop and conference on Diophantine approximation, transcendence, topological dynamics and topics in related areas of number theory and combinatorics held at Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, Kolkata, India during Jan 03-13, 2019.

Inter-city number theory seminar held at Indian Institute of Science Education and Research, Tirupati, India during Dec 17-18, 2018.

Workshop on modular forms held at Kerala School of Mathematics, Kozhikode, India during Oct 12-14, 2018.

The mathematics of Artin's conjectures held at Yerevan state university, Yerevan, Armenia during May 21-25, 2018.

Number theory: arithmetic, diophantine and transcendence held at Indian Institute of Technology Ropar, Ropar, India during Dec 22-25, 2017.

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## Computer skills

C, SAGE, Java, LaTeX