

Dr. Jay Mehta

CONTACT INFORMATION	Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar - 388 120, Gujarat.	jay_mehta[At]spuvvn(dot)edu jaygmehta[At]gmail(dot)com
HOMEPAGE	http://www.spuvvn.edu/academics/departments/mathematics/jgm.php http://www.sites.google.com/site/jaygmehta/	
POSITIONS HELD	Sardar Patel University , Vallabh Vidyanagar, India. Assistant Professor, Department of Mathematics. <ul style="list-style-type: none">• June 2016 - Present The Institute of Mathematical Sciences (IMSc) , Chennai, India. Postdoctoral researcher, Mathematics (Number Theory) <ul style="list-style-type: none">• June 2015 - June 2016	
EDUCATION	Harish-Chandra Research Institute (HRI) , Allahabad, India. Ph.D., Mathematics (Number Theory) <ul style="list-style-type: none">• August 2009 - June 2015• Title of Thesis: Characterization of Certain Arithmetical Functions• Advisor: Prof. Kalyan Chakraborty Sardar Patel University , Vallabh Vidyanagar, India. M.Sc., Department of Mathematics, June 2008 <ul style="list-style-type: none">• Subjects: <i>Mathematics</i>• Percentage (or Class): 78.11% (First Distinction) B.Sc., V.P. & R.P.T.P Science College, June 2006 <ul style="list-style-type: none">• Subjects: <i>Mathematics (Major), Statistics, Computer Application</i>• Percentage (or Class): 76.71% (First Distinction)	
RESEARCH INTERESTS	<i>Number Theory</i> - multiple zeta functions, modular forms, analytic number theory, arithmetical functions. <i>Cryptography</i> - Elliptic curve cryptography, key exchange and digital signatures.	
COMPUTER SOFTWARE AND PROGRAMMING SKILLS	L ^A T _E X, C language, Python programming, Scilab, Matlab.	
SEMINARS & CONFERENCES ATTENDED	<ul style="list-style-type: none">• Oct 16 - Oct 19, 2019 - International Conference on Class Groups of Number Fields and Related Topics (ICCGNFRT-2019), HRI, Allahabad.• May 11 - May 13, 2019 - International Conference on “2019 Sanmenxia Meeting on New Energy Technology-Vehicle Development”, Sanmenxia, China.• Dec 04 - Dec 06, 2018 - Workshop on Number Theory, NISER, Bhubaneswar.• Oct 08 - Oct 11, 2018 - International Conference on Class Groups of Number Fields and Related Topics (ICCGNFRT-2018), HRI, Allahabad.	

- Sep 01 - Sep 03, 2018 - EVs in Green Grid-Many a little makes a miracle, Sanmenxia, China.
- Jan 11 - Jan 24, 2016 - Indo-French Conference, Institute of Mathematical Sciences, Chennai.
- Dec 14 - Dec 18, 2015 - A Conference in Number Theory, Institute of Mathematical Sciences, Chennai.
- Dec 15 - Dec 20, 2011 - International Meeting on Number Theory, Harish-Chandra Research Institute, Allahabad.
- Mar 04 - Mar 18, 2011 - Special Year in Number Theory (SYM), Institute of Mathematical Sciences (IMSc), Chennai.
- Aug 19 - Aug 27, 2010 - International Congress of Mathematicians (ICM 2010), Hyderabad, India.
- Jan 20 - Feb 02, 2010 - Discussion Meeting on Geometry and Analysis, Harish-Chandra Research Institute, Allahabad.
- Nov 2 - Nov 14, 2009 - Discussion Meeting on Finite Fields and Coding Theory, Harish-Chandra Research Institute, Allahabad.
- Jan 30 - Jan 31, 2009 - National Seminar on Analysis, Differential Equations & Applications, M.S. University, Vadodara, Gujarat.
- February 17, 2008 - IIIrd GSA-VVN CSC Annual Science Meet, S.P. University, V V Nagar, Gujarat.
- Nov 25 - Nov 27, 2006 - 43rd Mathematics Annual Conference, by Gujarat Ganit Mandal, Surat, Gujarat.

WORKSHOPS &
SCHOOLS
ATTENDED

- March 4 - March 7, 2020 - Workshop on Analytic Number Theory, Kerala School of Mathematics, Kozhikode.
- Dec 22 - Jan 5, 2012 - ATM for lectures on Number Theory, Harish-Chandra Research Institute, Allahabad.
- Nov 16 - Nov 25, 2011 - Lectures on Theory of Numbers, Dept. of Mathematics, Tribhuvan University, Kirtipur, Nepal.
- Dec 13 - Dec 17, 2010 - Winter School in Number Theory on Waring's Problem by Prof. Ram Murty, IISERK, Kolkata.
- July 19 - July 31, 2010 - CIMPA School on 'Number Theory in Cryptography and its Applications', Kathmandu University, Dhulikhel, Nepal.
- Jan 24 - Jan 29, 2009 - Workshop on Problem Solving in Mathematics, Dept. Of Mathematics, S.P. University, Vallabh Vidyanagar.
- June 16 - July 04, 2008 - Summer Program In Mathematics (SPIM-08), Harish-Chandra Research Institute, Allahabad.
- Feb 21 - Feb 26, 2008 - Workshop on Problem Solving in Mathematics, Dept. Of Mathematics, S.P. University, Vallabh Vidyanagar.
- May 14 - June 09, 2007 - Mathematics Training & Talent Search Program, (MTTS -2007), Level-2, UICT, Mumbai.

VISIT TO OTHER
INSTITUTES

- Institute to Mathematical Sciences (IMSc), Chennai Mar 4-18, 2011
- Department of Mathematics, Tribhuvan University, Kirtipur, Nepal Nov 15-25, 2011
- Kinki University, Iizuka, Japan June 18 - July 2, 2014
- Kinki University, Main Campus, Osaka, Japan July 3-4, 2014
- Kinki University, Iizuka, Japan Oct. 15 - Oct. 24, 2015

- Weinan Normal University (WNU), Weinan, Shaanxi, China August 25-31, 2018
- SUDA Transporation Energy Saving Technology Research Institute, Sanmenxia, Henan, China Aug. 31-Sept. 3, 2018
- Harish-Chandra Research Institute (HRI), Allahabad Oct 8-14, 2018
- Indian Institute of Science Education and Research (IISER), Berhampur Dec 6-8, 2018
- Weinan Normal University (WNU), Weinan, Shaanxi, China May 09-10, 2019
- SUDA Transporation Energy Saving Technology Research Institute, Sanmenxia, Henan, China May 11-13, 2019
- School of Mathematics, Shandong University (SDU), Jinan, Shandong, China May 13-16, 2019
- Indian Institute of Science Education and Research (IISER), Berhampur Oct 21-25, 2019

AWARDS & HONOURS

- Best E-Lecture Award by REST Society for Research International (RSRI) - Oct. 11, 2020
- UGC-BSR Start-Up Research grant of ₹10 lakhs - 2018 - 2020
- Received Dept. of Atomic Energy (DAE) Fellowship for Postdoctoral Research at The Institute of Mathematical Sciences (IMSc), Chennai - June 2015 - June 2016
- Received NBHM Travel Grant to attend CIMPA School on ‘Number Theory in Cryptography and its Applications’, Kathmandu University, Nepal - August 2010
- Received Dept. of Atomic Energy (DAE) Fellowship for Ph.D. Program at Harish Chandra Research Institute - Aug 2009 - June 2015
- Selected for Ph.D. program at Indian Institute of Technology (IIT), Kanpur - June 2009
- Cleared NBHM Ph.D. Scholarship Written Test - 2009
- Qualified CSIR NET (National Eligibility Test for Lectureship) and Junior Research Fellowship - Dec 2008
- Qualified GATE exam with Score: 0387, Percentile Score: 92.32 and All India Rank: 201 - 2008
- Qualified Prof. A.R. Rao Mathematics Talent Test held by Gujarat Mathematics Association - 2005
- Selected in “Integration BEE Contest” held by Suganitam Trust at Christ College, Rajkot - 2004

TEACHING EXPERIENCE

Semester Courses

2020-21

- Topology I (PS01CMTH22) - Semester - I
- Group Theory (PS03EMTH36) - Semester - III
- Functional Analysis - I (PS02CMTH24) - Semester - II
- Complex Analysis - II (PS04CMTH21) - Semester - IV

2019-20

- Topology I (PS01CMTH22) - Semester - I
- Group Theory (PS03EMTH36) - Semester - III

- Problems & Exercises in Mathematics - I (Topology and Algebra) (PS03EMTH40) - Semester - III
- Functional Analysis - I (PS02CMTH24) - Semester - II
- Complex Analysis - II (PS04CMTH21) - Semester - IV
- Problems & Exercises in Mathematics - II (Topology and Algebra) (PS04EMTH42) - Semester - IV
- (Unit-1 on Matrices, Graph Theory) Principles of Mathematics and Biostatistics (PT02CBIC02) at IICISST, SPU - Semester - II

2018-19

- Linear Algebra (PS01CMTH24) - Semester - I
- Mathematical Classical Mechanics (PS01EMTH22) - Semester - I
- Computer Programming and Software (PS03EMTH32) - Semester - III
- Problems & Exercises in Mathematics - I (Topology and Algebra) (PS03EMTH40) - Semester - III
- Functional Analysis - I (PS02CMTH24) - Semester - II
- Computer Programming and Software (PS04EMTH32) - Semester - IV
- Group Theory (PS04EMTH37) - Semester - IV
- Problems & Exercises in Mathematics - II (Topology and Algebra) (PS04EMTH42) - Semester - IV
- (Unit-1 on Matrices, Graph Theory) Principles of Mathematics and Biostatistics (PT02CBIC02) at IICISST, SPU - Semester - II

Other courses and lectures

1. Gave a series of lectures on “Foundations in Mathematics” in a 3 week course in “Online Foundation Course in Mathematics (OFCM-2020)” of Mathematics Training and Talent Search Program (MTTS-2020) in online mode from 04th October to 24th October, 2020.
2. Delivered a lecture on “Algebra (irreducibility of polynomials)” in Tenth Problem Solving Workshop in Mathematics at Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar on 18th February, 2020.
3. Conducted one session of one and fifteen minutes on “Number Theory” in One Day Workshop on Problem Solving for NET/ GSET at Gujarat Arts and Science College, Ahmedabad on 31st August, 2019.
4. Taught a 2 week (12 lectures of one and half hours) course on “Number Theory” in Level - O of Mathematics Training and Talent Search Program (MTTS-2019) at RIE Ajmer from 20th May to 1st June, 2019.
5. Conducted one session of one and half hour on “Some Problems from Number Theory and Linear Algebra” in 5th State Level Workshop on Problem Solving & Enrichment in Mathematics at St. Xavier’s College, Ahmedabad on 29th December, 2018.
6. Resource person in State level ‘Workshop on L^AT_EX’ at V.S. Patel College of Arts and Science, Bilimora from 24th December to 25th December, 2018.
7. Delivered talk in One Day National Seminar on “Keys to Prepare for CSIR-NET Mathematical Science Examination” on 4th August, 2018 at Vadodara Institute of Engineering.

8. Taught a 2 week (12 lectures of one and half hours) course on “Number Theory” in Level - O of Mathematics Training and Talent Search Program (MTTS-2018) at SSN College, Chennai from 21st May to 2nd June, 2018.
9. Conducted one session of one and half hour on “Problems in Number Theory and Group Theory” in National Workshop on Problem Solving in Mathematics at Department of Mathematics-IX, Sardar Patel University, Vallabh Vidyangar on 6th May, 2018.
10. Conducted one session one 1 hour and 15 minutes in national workshop on “Problem solving techniques in mathematics - II” at Department of Mathematics, The M.S. University of Baroda, Vadodara on 30th November, 2017.
11. Conducted two sessions of one and half hour each on “Problems in Number Theory and Linear Algebra” in Workshop on Problem Solving Techniques in Mathematics at V.S. Patel College of Arts and Science, Bilimora on 23rd and 24th May, 2017.
12. Conducted two sessions of one and half hour each on “Problems in Number Theory” in Workshop on Problem Solving in Mathematics at Department of Mathematics, Sardar Patel University, Vallabh Vidyangar on 25th and 30th January, 2017.
13. Resource person for a course on ‘Cryptography’ in Refresher course for college lecturers during October 9–12, 2014 at Kerala School of Mathematics, Calicut.
14. Tutorials for a course on ‘Algebra’ in Summer Program in Mathematics (SPIM 2013) during June 17th, 2013 to July 5th, 2013 at Harish-Chandra Research Insitute, Allahabad.
15. Taught a course on ‘Set Topology’ in Summer Program in Mathematics (SPIM 2012) during June 16th, 2012 to July 4th, 2012 at Harish-Chandra Research Institute, Allahabad.
16. Conducted tutorial sessions on ‘Number Theory’ in Summer Program in Mathematics (SPIM 2012) during June 16th, 2012 to July 4th, 2012 at Harish-Chandra Research Institute, Allahabad.
17. Gave a couple of tutorials in Advanced Training Schools for Lectures (ATML) on number theory held from Dec. 22nd, 2011 to Jan. 5th, 2012 at Harish-Chandra Research Institute, Allahabad.
18. Took Tutorials on Waring’s Problem in Winter School on Number Theory by Prof. Ram Murty during December 13th to December 17th, 2011 at Indian Institute of Science Education and Research (IISERK), Kolkata.
19. Tutorials on ‘Introduction to Theory of Numbers’ during Nov. 15th to Nov. 25th, 2011 at Department of Mathematics, Tribhuvan University, Nepal.
20. Taken a course on ‘Topology’ in Summer Program in Mathematics (SPIM 2011) during June-July, 2011, at Harish-Chandra Research Institute, Allahabad.

SEMINARS, TALKS
& MEETINGS

Invited Seminar & Talks

1. Gave an invited talk on “Cryptography” in online mode in Government Science College, Gandhinagar on 22nd December, 2020.
2. Gave an invited talk on “Cryptography” in online mode in St. Albert’s College (Autonomous), Ernakulum, Kerala on 15th September, 2020.
3. Two webinar sessions on ‘Topics in Linear Algebra’ in “One-Week Advanced Level Bridge Course in Mathematics” organized by Ganpat University, Mehsana on 4th and 5th September, 2020.

4. An Invited Talk on “Introduction to Cryptography: Origin, History, Overview” in Science Symposium (Sciensium-2020) at Dr. Subhash Science College, Junagadh on 7th February, 2020.
5. ‘Gaussian primes as sets characterizing additive arithmetic functions’ in 2nd P.C. Vaidya National Conference on Mathematical Sciences at Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar on 29th December, 2019.
6. ‘Elliptic Curves and their Applications in Cryptography’ in an International Conference on History and Development in Mathematics, with Applications in Science and Technology (ICHDMAST-2019) at Madhuben and Bhanubhai Institute of Technology (MBIT), Vallabh Vidyanagar on 18th December, 2019.
7. ‘Set of uniqueness for additive arithmetic functions’ at Indian Institute of Science Education and Research (IISER), Berhampur on 24th October, 2019.
8. ‘An introduction to Cryptography and its applications’ as a guest lecture at M.U. Patel Technical High School, Vallabh Vidyanagar on 28th August, 2019.
9. ‘Applications of the Lerch zeta functions’ in the International Conference on “2019 Sanmenxia Meeting on New Energy Technology-Vehicle Development” at SUDA Transportation Energy Saving Technology Research Institute, Sanmenxia, China on 11th May, 2019.
10. ‘An introduction to Cryptography’ as Institute Colloquium at Indian Institute of Science Education and Research (IISER), Berhampur on 8th December, 2018.
11. ‘Set of Uniqueness of Shifted Gaussian primes’ at International Conference on “EVs in Green Grid - Many a little makes a miracle’ at SUDA Transportation Energy Saving Research Institute, Sanmenxia, China on 3rd September, 2018.
12. ‘A basic introduction to Cryptography’ at M.B. Patel Science College, Anand on 29th January, 2018.
13. ‘A brief introduction to Cryptography’ at Navyug Science College, Surat on 20th January, 2018.
14. ‘Cryptography: An Introduction’ at V.P. & R.P.T.P. Science College, Vallabh Vidyanagar on 22nd December, 2017.
15. ‘Cryptography: beginners’ introduction’ at N.V. Patel College of Pure and Applied Sciences, Vallabh Vidyanagar on 30th August, 2017.
16. A popular lecture on “Problem Solving - an essential skill for doing Mathematics” at V.S. Patel College of Arts and Science, Bilimora on 16th August, 2017.
17. ‘Set of uniqueness of shifted Gaussian primes’ in National Seminar on Functional Analysis and Harmonic Analysis at Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar on 16th January, 2017.
18. ‘Cryptography: A quick introduction’ at 53rd annual conference of Gujarat Ganit Mandal, Ganpat University, Mehsana, India on 25th December, 2016.
19. An Introduction to Cryptography at Kinki University, Osaka, Japan on 4th July, 2014.

Meetings and Events

1. Participated in Mathematics Training & Talent Search Program (MTTS) Silver Jubilee Alumni Meet held at Regional Institute of Education, Mysuru from 19th May to 20th May, 2017.
2. As a member of the judge panel for powerpoint presentation on “Role of Mathematics in Modern Technology” at V.P. & R.P.T.P. Science College, Vallabh Vidyanagar on 30th August, 2017.

FACULTY
DEVELOPMENT
PROGRAMS

1. Completed “43rd Orientation Program” of three weeks from 4-24 November, 2019 at HRDC, Vallabh Vidyanagar with grade A+.
2. Completed “Refresher Course in Mathematics” for two weeks from 7-19 December, 2020 at HRDC, Pt. Ravishankar Shukla University, Raipur.

JOURNAL
PUBLICATIONS

1. K. Chakraborty and J. Mehta, A Stamped Blind Signature Scheme based on Elliptic curve Discrete Log Problem, *International Journal of Network Security* **14** (2012), no. 6, 316-319.
2. K. Chakraborty and J. Mehta, On completely multiplicative complex valued functions, *Ann. Univ. Sci. Budapest. Sect. Comput.* **38** (2012), 19-24.
3. J. Mehta, On arithmetical functions having constant values in some domain, *Acta. Math. Hungar.* **142** (2014), no. 1, 110-117.
4. K. Chakraborty and J. Mehta, Preventing Unknown Key Share attack using Cryptographic Bilinear Maps, *J. of Discrete Mathematical Sciences and Cryptography* **17** (2014), no. 2, 135-147.
5. J. Mehta and G. K. Viswanadham, Quasi-uniqueness of Gaussian prime plus one's, *Int. J. of Number Theory* **10** (2014), no. 7, 1783-1790.
6. D. Banerjee and J. Mehta, On linearized product of two Riemann zeta functions, *Proc. Japan Acad. Ser. A Math. Sci.* **90** (2014), no. 8, 123-126.
7. J. Mehta and G. K. Viswanadham, Set of uniqueness of shifted Gaussian primes, *Funct. Approx. Comment. Math.* **53** (2015), no. 1, 123-133.
8. J. Mehta, B. Saha and G. K. Viswanadham, Analytic properties of multiple zeta functions and certain weighted variants, an elementary approach, *J. Number Theory*, **168** (2016), 487-508.
9. J. Mehta and G. K. Viswanadham, Analytic continuation of multiple Hurwitz zeta functions, *J. Math. Soc. Japan* **69** (2017), no. 4, 1431-1442.
10. W.-B. Li, H.-Y. Li and J. Mehta, Around the Lipschitz Summation Formula, *Mathematical Problems in Engineering* (2020), 16 pages.
11. B. Kumar, J. Mehta and G. K. Viswanadham, Some remarks on the Fourier coefficients of cusp forms, *Int. J. of Number Theory* **16**, no. 09 (2020), 1935-1943.
12. X.-H. Wang, J. Mehta and S. Kanemitsu, The boundary Lerch zeta-function and short character sums à la Y. Yamamoto, Preprint.

OTHER ACTIVITIES

- Reviewer for Mathematical Reviews (MR), American Mathematical Society (MathSciNet).
- Organizing secretary for Workshop on Problem Solving in Mathematics - VIII at Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar during 25th to 30th January, 2017.
- Organizing secretary for National Workshop on Problem Solving in Mathematics-IX at Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar during 02nd to 07th May, 2018.
- Coordinator for the National Workshop on Analytic Number Theory held at Kerala School of Mathematics, Kozhikode during 02nd to 07th May, 2020.

REFERENCES

- Prof. A. H. Hasmani
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Sardar Patel University,
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Anand, India.
- Prof. Kalyan Chakraborty
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- Professor Harish-Chandra Research Institute,
Chhatnag Road, Jhansi,
Allahabad - 211 019, India.
- Prof. Shigeru Kanemitsu
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