

# Vivek Tewary, PhD

Research Associate  
Department of Mathematics  
Indian Institute of Technology Bombay  
Powai, Mumbai, India 400076

## PERSONAL DATA

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Full Name:	Vivek Tewary
Date & Place of Birth:	16.10.1987, Lucknow, India
Nationality:	Indian
E-mail:	<a href="mailto:vivektewary@gmail.com">vivektewary@gmail.com</a> <a href="mailto:vivek@iitb.ac.in">vivek@iitb.ac.in</a>
Website:	<a href="https://vivektewary.github.io">https://vivektewary.github.io</a> <a href="http://www.math.iitb.ac.in/~vivektewary">http://www.math.iitb.ac.in/~vivektewary</a>

## RESEARCH INTERESTS

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<b>Main:</b>	Homogenization of Partial Differential Equations
<b>Specific:</b>	Bloch Wave Method in Homogenization, Spectral Theory of Periodic Elliptic Operators, Almost Periodic Homogenization, Approximation of Homogenized Tensor

## WORK EXPERIENCE

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<b>Research Associate</b> , Department of Mathematics Indian Institute of Technology Bombay, Mumbai India 400076	<i>November 2019 - Present</i>
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## EDUCATION

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<b>Ph.D. in Mathematics</b> <i>Thesis Defended on 18/02/2020</i> <i>Thesis Title:</i> “Generic Simplicity of Spectral Edges and Bloch Wave Homogenization of Almost Periodic Media” Since 2014 Indian Institute of Technology Bombay, CPI 9.5 <i>Advisor</i> Prof. Sivaji Ganesh Sista 2011-2014 Indian Institute of Technology Kanpur <i>Advisors</i> Profs. Nandini Nilakantan & Sivaji Ganesh Sista	<i>2011-2020</i>
<b>M.Sc., Mathematics</b> Indian Institute of Technology Kharagpur, CGPA 8.68 <i>Project Title:</i> Bounds on Zeros of Polynomials <i>Project Advisor:</i> Prof. V.K. Jain	<i>2009-2011</i>
<b>B.Sc. Mathematics</b> St. Xavier’s College, Mumbai, Affiliated to University of Mumbai Overall Percentage 84%	<i>2006-2009</i>
<b>GCE Advanced Levels, Edexcel</b> Northolt High School, Middlesex, U.K. Overall Percentage 92.3%	<i>2003-2005</i>

## FULL LIST OF PUBLICATIONS

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### Preprints

- Sivaji Ganesh Sista & Vivek Tewary, [Bloch wave homogenization of quasiperiodic media](#), 2019, arXiv:1910.12724
- Sivaji Ganesh Sista & Vivek Tewary, [Bloch wave approach to almost periodic homogenization and approximation of effective coefficients](#), 2019, arXiv:1908.07977

### Accepted & Published Papers

- Sivaji Ganesh Sista & Vivek Tewary, [Generic simplicity of spectral edges and applications to homogenization](#), Asymptotic Analysis, vol. 116, no. 3-4, pp. 219-248, 2020, preprint at [arXiv:1807.00917](#)
- Vinay Kumar Jain & Vivek Tewary, [A refinement of Cauchy's bound for the moduli of zeros of a polynomial](#), Bull. Math. Soc. Sci. Math. Roumanie (N.S.) 61(109) (2018), no. 2, 173-185.

## FELLOWSHIP GRANTS

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- Qualified for CSIR-NET JRF Fellowship (NET), December 2013.
- Qualified for National Board of Higher Mathematics Research Fellowship, May 2012.
- Qualified for UGC-NET JRF Fellowship (NET), December 2010.

## TALKS AND SEMINARS

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- **23 February 2020:** Presented a talk titled “*Bloch Wave Homogenization of Quasiperiodic Media*” at *Conference on Differential Equations, Control & Homogenization*. Indian Institute of Technology Bombay. *Organizers* Debanjana Mitra, Mythily Ramaswamy.
- **20 February 2020:** Presented a talk titled “*Bloch Wave Approach to Almost Periodic Homogenization*” at TIFR Centre for Applicable Mathematics, Bengaluru.
- **6 September 2019:** Presented a talk titled “*Simplicity of Spectral Edges and Applications to Homogenization*” at *Discussion Meeting on Multi-scale Analysis and Theory of Homogenization*. International Centre for Theoretical Sciences, TIFR, Bengaluru  
*Organizers* Patrizia Donato, Editha Jose, Akambadath Nandakumaran and Daniel Onofrei.
- **5 January 2019** Presented a talk titled “*Simplicity of Spectral Edges and Applications to Homogenization*” at the Diamond Jubilee Symposium, Department of Mathematics, Indian Institute of Technology Bombay.
- **8 July 2018:** Presented a talk titled “*Perturbation Theory of Bloch Eigenvalues and Applications to Homogenization*” at the 12<sup>th</sup> AIMS Conference on Dynamical Systems, Differential Equations and Applications in Taipei, Taiwan, organized by the National Center for Theoretical Sciences (NCTS), Taiwan and the American Institute of Mathematical Sciences (AIMS).

## ORGANIZATIONAL ACTIVITY

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Member, Organizing Committee, [Diamond Jubilee Symposium](#)  
Department of Mathematics, Indian Institute of Technology Bombay.

4-6 January 2019

## ATTENDED CONFERENCES, SCHOOLS AND WORKSHOPS

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- Participant, *Discussion Meeting on Multi-scale Analysis and Theory of Homogenization*. International Centre for Theoretical Sciences, TIFR, Bengaluru. *Organizers* Profs. Patrizia Donato, Editha Jose, Akambadath Nandakumaran and Daniel Onofrei.  
26 Aug- 6 Sep '19

- Chaired a session titled “*PDEs and Applications*” at the 12<sup>th</sup> AIMS Conference on Dynamical Systems, Differential Equations and Applications in Taipei, Taiwan, organized by the National Center for Theoretical Sciences (NCTS), Taiwan and the American Institute of Mathematical Sciences (AIMS).  
8 July 2018
- Participant, *Advanced Workshop on Homogenization and Control: Theory & Application, National Programme on Differential Equations (NPDE-TCA)*. Indian Institute of Technology Kanpur. *Convener* Prof. T. Muthukumar. *Feb-March 2016*
- Participant, *Advanced Level Workshop on Controllability Of Heat And Wave Equations, National Programme on Differential Equations (NPDE-TCA)*. Indian Institute of Technology Mandi. *Convener* Prof. M. Malik. *November 2015*
- Participant, *Advanced School and Workshop on Control and Numerics for Fluid-Structure Interaction Problems*. TIFR Centre for Applicable Mathematics, Bengaluru. *June-July 2015*
- Participant, *Advanced Workshop on Homogenization, National Programme on Differential Equations (NPDE-TCA)*. Indian Institute of Space Science and Technology, Thiruvananthapuram. *Convener* Prof. N. Sabu. *December 2013*
- Participant, *Advanced Level Training Programme, National Programme on Differential Equations (NPDE-TCA)*, Department of Mathematics, Indian Institute of Science Bangalore. *June-July 2013*
- *Summer Internship, National Programme on Differential Equations (NPDE-TCA)*, Indian Institute of Technology Bombay. *Advisor* Prof. Sivaji Ganesh Sista. *May-June 2013*
- Participant, *Winternship, National Programme on Differential Equations (NPDE-TCA)*. Indian Institute of Technology Bombay. *Advisor* Prof. Sivaji Ganesh Sista. *December 2012*
- Participant, *Advanced Training in Mathematics Workshop in Riemannian Geometry*. Tata Institute of Fundamental Research Centre for Applicable Mathematics, Bengaluru. *Convener* Prof. C.S. Aravinda, Prof. H. Sheshadri. *July 2012*
- Participant, *Advanced Training in Mathematics Workshop in Harmonic Analysis*. Indian Institute of Technology Kanpur. *Convener* Prof. Shobha Madan, Prof. P. Mohanty. *January 2012*
- Participant, *Mathematics Training and Talent Scheme - Level O - Mysore*. Organized by National Board of Higher Mathematics. *May - June 2008*
- Summer Student, *Summer Student Programme in Physics*. Institute of Mathematical Sciences, Chennai. Nonlinear Dynamics: Coupled Map Lattices under Prof. Sudeshna Sinha. *April - May 2008*

## TEACHING DUTIES

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Teaching duties included teaching tutorial and problem classes, conducting and marking quizzes and examinations.

**9 Dec- 28 Dec '19:** Tutor, *Advanced Instructional School on Geometric Analysis*. Indian Institute of Technology Bombay, Mumbai, India. *Conveners* Profs. Bata Krishna Das, Mayukh Mukherjee.

**Autumn 2015:** Teaching Assistant, *MA 205 Complex Analysis* (IIT Bombay).

**Spring 2017:** Teaching Assistant, *MA 108 Differential Equations* (IIT Goa).

**Spring 2018:** Teaching Assistant, *MA 106 Linear Algebra* (IIT Dharwad).

**Spring 2018:** Teaching Assistant, *MA 108* Differential Equations (IIT Dharwad).

## DEPARTMENTAL DUTIES

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**2016-2019:** *System Administrator:* Responsible for maintaining the Departmental Website and the M.Sc. Laboratory, Department of Mathematics, IIT Bombay.

**2016-2019** *Member,* Webpage Committee & Computer Lab Committee, Department of Mathematics, IIT Bombay.

## REFERENCES

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**Prof. Sivaji Ganesh Sista**

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IIT Bombay

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**Prof. Muthusamy Vanninathan**

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**Prof. Harsha Hutridurga**

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**Prof. Nandini Nilakantan**

Department of Math. & Stat.  
IIT Kanpur

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## GENERAL SKILLS

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Languages

Programming

Hindi and English

C,  $\text{\LaTeX}$ , Matlab

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Mumbai, February 27, 2020