

Assistant Professor	Phone	: +91 9867093016
Department of Mathematics	Nationality	: Indian
Indian Institute Of Technology Madras	Email	: <a href="mailto:rameshkasilingam.iitb@gmail.com">rameshkasilingam.iitb@gmail.com</a> ;
Chennai -600 036		<a href="mailto:rameshk@iitm.ac.in">rameshk@iitm.ac.in</a>
India		<a href="https://sites.google.com/site/rkasilingamiitb/">https://sites.google.com/site/rkasilingamiitb/</a>

---

## RESEARCH INTERESTS

Differential and algebraic topology and their interactions with differential geometry. Especially : the surgery classification of high-dimensional manifolds and their smooth structures, the study of exotic smooth structures and geometric (curvature, symplectic, complex and Kahler) structures on manifolds, group actions on exotic spheres, stable (co)homotopy theory and the construction of exotic smooth structures via the inertia group, the homotopy inertia group and the concordance inertia group of manifolds.

## RESEARCH EXPERIENCE

- DST-INSPIRE Faculty at the Indian Statistical Institute Bangalore Centre, India from September 24, 2015-August 30, 2018.
- Visiting Scientist at the Indian Statistical Institute Kolkata, India from April 2015-September 2015.
- Research Associate at the Indian Institute of Technology Bombay, India from February 2015-March 2015.

## EDUCATION

- Doctor of Philosophy (Ph.D.) Mathematics

Institute : Indian Institute of Technology Bombay, India.

Percentage of Course Work : 8.47 CPI (First Class).

Supervisor : [Prof. Anant R Shastri](#).

Title of Ph.D thesis : Effect of Taking Connected Sum on Smooth Structures.

Ph.D Thesis Submitted : October 29, 2014.

Ph.D Thesis Defended : February 04, 2015.

Graduation : March 11, 2015.

- Master of Science (M.Sc.) Mathematics

Institute : Anna University, Chennai, Tamil Nadu, India.

Percentage : 7.104 CGPA (First Class).

Graduation : April 2006.

- Bachelor of Science (B.Sc.) Mathematics

Institute : Arignar Anna Government Arts College, Namakkal (affiliated to Periyar University), Tamil Nadu, India.

Percentage : 74 % (First Class).

Graduation : April 2004.

## PUBLICATIONS & PREPRINTS

### Submitted/posted papers

- with Samik Basu : *Inertia Groups and Smooth Structures on Quaternionic Projective Space*. [arXiv:1708.06582](https://arxiv.org/abs/1708.06582).
- *Smooth Structures on Complex Projective Spaces*. [arXiv:1701.07592](https://arxiv.org/abs/1701.07592).

### Published papers

- with Samik Basu : *Inertia Groups of Higher-Dimensional Complex Projective Spaces*, Algebraic & Geometric Topology 18 (2018) 387-408. [arXiv:1510.02636](https://arxiv.org/abs/1510.02636).
- *Homotopy Inertia Groups and Tangential Structures*, JP Journal of Geometry and Topology 20 (2), (2017) 91-114. [arXiv:1511.03802](https://arxiv.org/abs/1511.03802).
- *Smooth Structures on a Fake Projective Space*, Topology and its Applications, 206 (2016) 1-7. [arXiv:1510.03037](https://arxiv.org/abs/1510.03037).
- *The Classification of Smooth Structures on a Homotopy Complex Projective Space*, Proc. Indian Acad. Sci. (Math. Sci.), Vol.126, No.2 (2016), 277-281. [arXiv:1510.03032](https://arxiv.org/abs/1510.03032).
- *Inertia Groups and Smooth Structures of  $(n - 1)$ -connected  $2n$ -manifolds*, Osaka J. Math., Vol. 53, No. 2 (2016), 309-319. [arXiv:1510.03031](https://arxiv.org/abs/1510.03031).
- *Farrell-Jones Spheres and Inertia Groups of Complex Projective Spaces*, Forum Math. 27 (2015), No. 5, 3005-3015. [arXiv:1510.03029](https://arxiv.org/abs/1510.03029).

## Survey articles

- *Topological Rigidity Problems*, Journal of Advanced Studies in Topology, Vol.7, Issue 4 (2016), 161-204. [arXiv:1510.04139](#).
- *A Survey of Smooth and PL-Rigidity Problems on Locally Symmetric Spaces*, Journal of Advanced Studies in Topology, Vol.7, Issue 4 (2016), 205-250. [arXiv:1510.04140](#).

## AWARDS/GRANTS

- emphthe Open Arms travel grants program to attend the International Congress of Mathematicians (ICM 2018), Rio de Janeiro, August 2018.
- *Bharat Vidya Ratan Award* by International Business Council (IBC) and Indian Solidarity Council (ISC) for outstanding social contribution in the field of education at New Delhi on 27th September, 2017.
- *Inspire Faculty Award* by Department of Science and Technology, Govt. of India in 2015.
- The *Award of Excellence in Ph.D.Thesis* for the year 2015, IIT Bombay.
- *National Eligibility Test* (NET-CSIR) Jointly Conducted by Council of Scientific & Industrial Research and University Grant Commission, India, June 2009.
- *GATE* Qualified Junior Research Fellowship, 2010.
- Travel and local support: 216 USD in 2014 from *Stony Brook University*, New York, United States.

## TEACHING EXPERIENCE

- Teaching Assistant for *Topology-I : Point-set topology* at Indian Statistical Institute, Bangalore, India. Course Instructor : Dr. Ramesh Sreekantan (Fall 2017).
- Teaching Assistant for *Topology-II : Algebraic Topology* at Indian Statistical Institute, Bangalore, India. Course Instructor : Prof. B. Bagchi (Winter 2016).
- Instructor : *Algebraic Topology*. Course taught: Topology-III, July-Nov 2016, Indian Statistical Institute, Bangalore, India.
- Taught *Point-set topology* at IISER Thiruvananthapuram, Annual Foundation School-I (December 2016).
- Taught *Algebraic Topology* at IISER Thiruvananthapuram, Annual Foundation School-III (June-July 2016).

- Taught *Algebra* at JECRC University, Jaipur, Annual Foundation School-I (November-December 2015).
- Teaching Assistant for *Algebraic Topology* in AFS-II at Pune University, Course Instructor : Prof. Anant R. Shastri (June 2012).
- Teaching Assistant for B.Tech Classes (*Calculus, Differential Equations, Complex Analysis, Numerical analysis and Linear Algebra*), Department of Mathematics, Indian Institute of Technology Bombay, during July 2009 - July 2013.

## RESEARCH VISITS

- Stony Brook University, New York, July 27-August 10, 2014.
- TIFR Centre for Applicable Mathematics, Bangalore, India, March 14-April 25, 2012.

## INVITED TALKS

- *Smooth structures on Complex Projective Spaces*  
At the Department Colloquium, TIFR Centre in Bangalore, India, April 24, 2018.
- *Smooth structures on quaternionic projective spaces*  
At the Department Colloquium, ISI Bangalore, India, April 19, 2018.
- *Smooth Structures on Complex Projective Spaces*  
At 7<sup>th</sup> East Asian Conference on Algebraic Topology in IISER Mohali, India, December 01-06, 2017.
- *Smooth Structures on Manifolds*  
At the North-Eastern Hill University, Shillong, India, March 10-15, 2017.
- *Smooth Structures on a Fake Real Projective Space*  
At the 30<sup>th</sup> Annual Conference of the Ramanujan Mathematical Society in IISER Mohali, India, May 15-17, 2015.
- *Smooth Structures on Hyperbolic Manifolds*  
At the Department Colloquium, IIT Bombay, India, September 03, 2014.
- *Exotic Spheres and Manifolds*  
At the Stony Brook University, New York, July 28, 2014.
- *Farrell-Jones Spheres*  
At the 28<sup>th</sup> Annual Conference of the Ramanujan Mathematical Society in Reva Institute of Technology and Management, Bangalore, India, June 27-30, 2013.

- *Detecting Exotic Structures on Locally Symmetric Spaces*  
At the Symposium on Algebraic and Differential Topology in the 78<sup>th</sup> Annual Conference of Indian Mathematical Society, Banaras Hindu University, Varanasi, India, January 22-25, 2013.

## CONFERENCE/WORKSHOP/SYMPOSIUM TALKS

- *Exotic smooth structures on complex projective spaces and complex hyperbolic manifolds*  
At Indian Institute of Science (IISc), Bangalore, India, May 4, 2018.
- *Smooth Structures on Complex Projective Spaces*  
At TIFR Bangalore, India, April 24, 2018.
- *Smooth Structures on Complex Projective Spaces*  
At the Stat-Math Symposium, Indian Statistical Institute, Bangalore, India, September 18-19, 2017.
- *Differentiable Structures of Hyperbolic Manifolds*  
At the Workshop on Geometry, Arithmetic and Analysis on Hyperbolic Spaces (GAAHS), University of Delhi, India, December 10-15, 2014.
- *Farrell-Jones Spheres and Inertia Groups of Complex Projective Spaces*  
At the Geometric Topology Special Session of the 29th Summer Conference on Topology and its Applications, College of Staten Island, CUNY, New York, July 23-26, 2014.
- *Adams d-invariant, Hitchin Spheres and the Complement of Inertia Groups*  
At the International ATM Workshop and Conference on Surgery Theory and Classification of Manifolds, North-Eastern Hill University, Shillong, India, June 17-26, 2013.
- *Detecting Exotic Structures on Locally Symmetric Spaces*  
At the Advanced Training in Mathematics Workshop in Topology, Institute of Mathematical Sciences (IMSc) Chennai, India, February 4-9, 2013.
- *Smooth Structures on a Homotopy Complex Projective Spaces*  
At the colloquium, Indian Statistical Institute, Kolkata, India, September 14, 2010.

## CONFERENCES/WORKSHOPS ATTENDED

- *The International Congress of Mathematicians (ICM 2018)*, Rio de Janeiro, August 2018.

- *The Young Topologists Meeting*, Stockholm University and the Royal Institute of Technology, Stockholm, Sweden, July 3-7, 2017.
- UGC SAP Three Day Seminar ” *On current trends in Mathematics*”, North-Eastern Hill University, Shillong, India, March 14-16, 2017.
- The two day BIRS workshop on *Surgery and Geometry*, Banff, Alberta, Canada, July 23-24, 2016.
- *Summer School on Surgery and the Classification of Manifolds*, University of Calgary, Canada, July 18-22, 2016.
- The International Colloquium on *K-Theory*, Tata Institute of Fundamental Research, Mumbai, India, January 6-14, 2016.
- *Panorama Lecture series on Topological constraints in Riemannian Geometry and Bundles with negatively curved fibers* given by *Prof.F.T. Farrell* of SUNY Binghamton, New York at TIFR Centre for Applicable Mathematics, Bangalore, India, March 14-April 25, 2012.
- A series of lectures on *Smale’s h-Cobordism Theorem and Deduction of Poincare Conjecture in dimension greater than or equal to 6 and Topological Rigidity Problems* given by *Prof. F. T. Farrell* of SUNY Binghamton New York USA in Indian Institute of Techonology, Bombay, India, January 05-February 28, 2012.
- ATMW Lattices : *Geometry and Dynamics*, IISER Mohali, India, December 17-22, 2014.
- Advanced Training in Mathematics Workshop in *Topology*, Institute of Mathematical Sciences, Chennai, India, February 4-9, 2013.
- MPLW *Kervaire Invariant Problem and its solution*, Indian Statistical Institute Kolkata, India, May 14-25, 2012.
- Advanced Instructional School on *Geometric Methods in Complex Analysis*, Indian Institute of Science, Bangalore, India, April 2-21, 2012.
- Advanced Training in Mathematics workshop in *Geometry and Topology*, Indian Institute of Techonology, Bombay, February 20-28, 2012.
- Advanced Instructional School in *Algebraic Topology*, North-Eastern Hill University, Shillong, India, 13 June-2 July, 2011.
- Annual Foundation School-I, Panjab University, Chandigarh, India, December 9-29, 2010.

- Advanced Training in Mathematics (ATM) School for Lecturers in *Complex Analysis with the Modern Perspectives*, University of Delhi, Delhi, India, 16 Mar-4 April, 2009.

## SOCIAL ACTIVITIES

I have been running an email based google group, Called Maths-India. This group is mainly useful for those who are working in Mathematics, Statistics or Operational Research, and their applications. More than 10,000 people are part of this group. From this group, most of the students, Researchers, Lecturers, and Professors are getting benefits, via., conferences, workshops, jobs, scholarships, Ph.D and Postdoctoral details,...etc, from the national and international levels.

## PERSONAL DETAILS

Father Name	: S. Kasilingam
Mother Name	: K. Chinnaponnu
Date of Birth	: March 8, 1984
Nationality	: Indian
Hometown	: House Number 1/46 Arathi Agragharam Kamakkapalayam Post Attur Taluk, Salem-636 112 Tamil Nadu, India

## REFERENCES

[Anant R Shastri](#)  
Emeritus Fellow  
Department of Mathematics  
Indian Institute of Technology Bombay  
Powai-400076, India  
Email : [anant.shastri@gmail.com](mailto:anant.shastri@gmail.com)

[Thomas Farrell](#)  
Distinguished Professor  
Department of Mathematical Sciences  
SUNY, Binghamton University  
New York 13902  
Email : [farrell@math.binghamton.edu](mailto:farrell@math.binghamton.edu)

[M.S. Raghunathan](#)  
Distinguished Professor  
Department of Mathematics  
Centre for Excellence in Basic Sciences  
Mumbai-400098, India  
Email : [msr@math.tifr.res.in](mailto:msr@math.tifr.res.in),  
[madabusisr@gmail.com](mailto:madabusisr@gmail.com)

[Professor Parameswaran Sankaran](#)  
Institute of Mathematical Sciences  
CIT Campus, Taramani  
Chennai 600 113  
India  
Email: [sankaran@imsc.res.in](mailto:sankaran@imsc.res.in)

[Balmohan V. Limaye](#) (Teaching Reference)  
Emeritus Fellow  
Department of Mathematics  
Indian Institute of Technology Bombay  
Powai-400076, India  
Email : [bvl@math.iitb.ac.in](mailto:bvl@math.iitb.ac.in)

[Professor Akhil Ranjan](#)  
Department of Mathematics  
Indian Institute of Technology Bombay  
Powai-400076  
India  
Email : [aranjan@iitb.ac.in](mailto:aranjan@iitb.ac.in)