Venkata Sai Narayana Bavisetty

CONTACT INFORMATION

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EDUCATION

5 Year Integrated M.Sc. Mathematics (Masters), IIT Bombay, August 2017
CPI (Cumulative Performance Index)-9.59/10 *CPI* in math courses is 9.78/10

Intermediate, Sri Chaitanya Junior Kalasala, Hyderabad, June 2012. Grade:*95.6 %*

SCHOLASTIC ACHIEVEMENTS

Achieved an SPI (Semester Performance Index) of 10/10 in both semesters in 2015.

Awarded AP (A+) for exceptional performance in the courses Lie Groups and Lie Algebras, Ordinary Differential Equations, Partial Differential Equations, Functional Analysis Measure Theory and Topics in Geometry.

Secured All India Rank 77 in IIT JEE (Joint Entrance Examination for IIT's) among half million candidates - **2012**

Among the top 35 students selected to attend selection camp for International Astronomy Olympiad - **2012**

Selected for the National Talent Search Examination scholarship - **2008**

PROJECTS

Atiyah-Singer Index theorem - Spring 2016
Guide: Professor Akhil Ranjan.
Read about Atiyah-Singer Index theorem and the heat kernel proof of Gauss Bonnet theorem from the book *Invariance Theory, the Heat Equation, and the Atiyah-Singer Index Theorem* by Gilkey. This is a part of my Master's Thesis.

Spectral Sequences, Cohomology theories and Formal Group Laws - Spring 2016
Guide: Professor Rekha Santhanam.
Studied applications of Serre Spectral sequence for a fibration from the book *Cohomology Operations and Applications in Homotopy Theory* by Mosher and Tangora. Read the construction and properties of Steenrod Squares and the characterisation of all stable cohomology operations. Presented the calculation of $K-$theory of sphere using Adams' spectral sequence to illustrate a calculation based on Adams' spectral sequence. Gave a talk on Extraordinary cohomology theories and Formal group laws.

Gromov's H-Principle - Autumn 2016
Guide: Professor MS Raghunathan.
Read proof of Gromov's theorem for open partial differential relation from the book *Introduction to h-principle* by Eliashberg and Mishachev. The proof follows the idea of holonomic approximation, that is finding a holonomic approximation of a section of jet bundle near a slightly perturbed submanifold of the original submanifold. This is a part of my Masters Thesis.

Sheaf Cohomology and Spectral Sequences - Autumn 2016
Guide: Professor Rekha Santhanam.
Studied sheaf cohomology from Grothendieck's paper *Some aspects of homological algebra.* The topics covered were sheaves, right derived functors and sheaf cohomology using injective resolutions and acyclic resolutions.

Characteristic Classes - Spring 2016
Guide: Professor Rekha Santhanam.
Read Chern Weil theory and Characteristic Classes for vector bundles from the book *Geometry of Differential Forms* by Shigeyuki Morita. The Chern classes and Pontryagin classes were defined using invariant polynomials, curvature form and Chern Weil theory assures that these classes are independent of the connection.

TIFR Visiting Student Research Programme - Summer 2015
Guide: Professor N Fakhruddin.
Studied Algebraic Geometry from the book *Algebraic Curves* by William Fulton. The topics covered in this project were varieties(affine and projective), intersection theory of curves and Bezout's theorem.

Teaching Experience

Worked as Teaching Assistant for **Differential Equations II MA 207** in *Autumn 2014* and *2015*.
Worked as Teaching Assistant for **Complex Analysis MA 205** in *Autumn 2014*.
TA duties included conducting tutorials (recitation sections) and weekly quizzes,making problems for exams and grading exams.

Talks

Cohomology theories and Formal group laws-Seminar Presentation	**Apr 2017**
Steenrod Squares: Construction and Properties-Seminar Presentation	**Feb 2017**
De Rham's theorem using Sheaf Cohomology- Student Seminar	**Sep 2016**
Lefschetz Fixed Point theorem- Course Presentation	**Mar 2016**
Whitney's Approximation Theorem- Course Presentation	**Oct 2015**
Resolution of Singularities- VSRP Presentation	**Jul 2015**
Schwarz Christoffel Formula- Course Presentation	**Mar 2015**

Course Work

I have done basic courses in Analysis, Algebra, Topology and Differential Equations.
Apart from these I have taken the following graduate level courses

Complex Analysis and Special Functions	Differential Topology
Hyperbolic Geometry	Algebraic Topology
Hyperplane Arrangements, Species, Operads and Hopf Algebras	

Seminars

Workshop on h-principle - May 2017
Attended the workshop on h-principle which covered holonomic approximation and convex integration. There were also talks on introduction to contact and symplectic geometry.

Riemannian Geometry Seminar - Spring 2016
Guide: Professor Mahan Mj.
Studied Riemannian Geometry from the book *Riemannian Geometry* by Do Carmo.
Also lectured on Affine Connections and Geodesics in the seminar.

Seminar on Atiyah Singer Index theorem - Spring 2016
Attended the weekly seminar which discussed the proof of Atiyah Singer index theorem.

Workshop on Differential Geometry - May 2016
Attended the workshop on differential geometry which consisted of lectures on five topics viz-a-viz Basics of Differential Topology,Curves and Surfaces,Connections on Principal Bundles,Morse Theory and Riemannian Geometry.

Attended a seminar course on **Ergodic theory** given by Professor SG Dani.

Volunteer Activities

Volunteered to be an NSS Associate.
Participated in Cloth Collection Drive and we collected 2200 Kg clothes.

Participated in “Liter Of Light” , an activity aimed at reducing need for electricity in slums.
Participated in “One sided Paper Collection Drive” and made a lot of books which were given to the poor and needy.