

[Return to main home page](#)

MANISH KUMAR GUPTA: CURRICULUM VITAE

EDUCATION

- 2000: Ph.D. Mathematics, Indian Institute of Technology, Kanpur, India
 - External Examiner: P. Vijay Kumar, University of Southern California and Jay A. Wood, Western Michigan University
 - Dissertation: *On Some Linear Codes over Z_2^s*
- 1992: M.Sc. Mathematics, University of Lucknow, India
First division and third rank in the order of merit (out of 120 students)
- 1990: B.Sc. Mathematics, Physics and Chemistry, University of Lucknow, India
First division and third rank in the order of merit (out of 2000 students)

ACADEMIC EXPERIENCE

Regular Appointments

- 2006-Present Assistant Professor (tenured), Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), India
- 2005-2006 Adjunct Assistant Professor and Research Fellow, Mathematics Department, Queens University, Canada
- 2004-2005 Lecturer and Research Fellow, Electrical and Computer Engineering Department, Ohio State University, USA
- 2002-2004 Faculty Associate and Research Fellow, Computer Science and Engineering Department, Arizona State University, USA
- 2000-2002 Marsden Research Fellow, University of Canterbury, Christchurch, New Zealand
- 1993-2000: Research Associate and Teaching Associate, Indian Institute of Technology, Kanpur, India

Visiting and Cross Appointments

- 2005 Visiting Professor, Pohang University of Science and Technology (POSTECH), Pohang, South Korea (1 week)
- 2001 SPRINT Research Visitor, National University of Singapore, Singapore (2 weeks)

AWARDS / FELLOWSHIPS / HONORS

- Invited for Microsoft Research Faculty Summit, Redmond, USA, July 2009
- Board Member, Indo-American Education Society, United States-India Educational Foundation (IAES-USIEF),
Affiliated to the U. S. Department of State's Bureau of Educational and Cultural Affairs, Satellite Center, Ahmedabad, India, since 2008
- Nominated for Dr Vikram Sarabhai Award 2009 (Government of Gujarat) in Biotechnology by DA-IICT, Oct 2009
- Invited keynote speaker (3 hours lectures) in Com2Mac workshop on Biological Coding Theory at

Pohang University of Science and Technology, Pohang, South Korea, June 2005.

- Marsden Postdoctoral Fellowship (Royal Society of New Zealand)-2000-2002
- GATE (Graduate Aptitude Test in Engineering, Govt. of India)-1993
- CSIR (Council of Scientific and Industrial Research) fellowship (Govt. of India)-1995
- NET (National Eligibility Test) for Lectureship in Indian Universities-1995
- Uttar Pradesh Sachiwalya fellowship - (1989-1992)

Grants and other external sponsored activities

- Microsoft Research India Travel Grant (April 2009)
- Visiting Professor, Pohang University of Science and Technology (2005)
- Sprint Research Visitor, National University of Singapore (2001)
- Travel grant, University of California, San Francisco, USA (2006)
- Travel grant, University of Virginia, USA, (2003)
- Travel grant, San Diego State University, USA, (2003)

Proposals submitted/ or in progress are not listed here.

WORK EXPERIENCE

RESEARCH

CURRENT RESEARCH INTERESTS

1. Information Processing in Molecular Biology and Chemistry
2. DNA and Quantum computing
3. Bioinformatics, Computational Molecular Biology and Systems Biology
4. Multi-user coding and information theory
5. Coding theory and Cryptology
6. Algorithms
7. Combinatorial Group Testing and its applications to biology
8. Combinatorial Designs and its applications to computer science
9. Number Theory, Algebra and its applications
10. Cellular Automata and its applications

Specific research work in: DNA and PAH self-assembly, RNA and DNA Folding, Molecular Docking, HIV-1, Coding Theory, Quantum error correction, Space-Time codes, Biological Coding Theory, Protein folding, Gene networks, Applications of graph theory and computational geometry to proteins and drug design, error-correcting microarray.

Invited Conference Talks

1. Biological Coding Theory I: Introduction
Biological Coding Theory II: Coding Theory for DNA Computing and Microarray
Biological Coding Theory III: Coding Theory for DNA Self Assembly
COM2MAC Workshop on Biological Coding Theory [COM2MAC Center, Postech University,](http://www.com2mac.org/)
Pohang, South Korea, 27-28 June 2005 (**Keynote Speaker for 3 hours lectures**)
2. On Modular Gray Map, Special Session on Algebraic Coding Theory, Central Section Meeting #995, American Mathematical Society, Athens, OH, 26-27 March 2004
3. Biological Coding Theory: The Emerging Paradigm? DIMACS Workshop on Algebraic Coding

Theory and Information Theory, DIMACS Center, Rutgers University, Piscataway, NJ, 15-18 December 2003

Some Recent Presentations and Colloquiums

1. Structural Coding and Information Theory for Biological Systems [California Institute for Quantitative Biomedical Research](#), University of California, San Francisco, CA, USA, May 8, 2006. [Abstract](#)
2. Information Processing in Biology: Algorithmic Self-Assembly, Opportunities and Challenges for Coding [Department of Electrical and Computer Engineering](#), Ohio State University, OH, USA, February 8, 2005. [Abstract](#)
3. Codes and Biology: A Second Emerging Bridge, [Department of Mathematics](#), Colloquium, San Diego State University, CA, USA, September 25, 2003. [Abstract \(PDF\)](#)

Recent Participations in Conference/Workshop

1. Microsoft Research Faculty Summit, Redmond, USA, July 2009 (**Invited**)
2. Vibrant Gujarat Global Investors Summit, India, Jan 2009 (**Invited**)
3. Genome 2.0, New Frontiers in Epigenomics Symposium, June 2, 2008, MaRS Centre, Toronto, ON, Canada
4. Workshop on Growth and Control of Tumors: Theory and Experiment, July 2-4, 2008, Fields Institute- Thematic Program on Mathematical and Quantitative Oncology, Toronto, Canada

Recent Publications and Preprints Publication list with online papers is available from:

<http://www.mankg.com/pub.html>

More presentations are available from: http://www.mankg.com/WWW/conf_talks.html

My lab page is at <http://www.guptalab.org>

Professional Committees

1. Member, Program Committee, 2nd ACM Compute 2010 conference, Bangalore, India, Jan 22-23, 2010

Referee to Journals/Conferences:

I often serve as a referee to the following journals:

1. Bio Systems
2. Discrete Mathematics
3. Designs, Codes and Cryptography
4. Information Sciences
5. Journal of Combinatorics, Information and System Sciences
6. IEEE Engineering in Medicine and Biology Magazine
7. IEEE Transactions on Information Theory
8. IEICE Transaction on Fundamental of Electronics, Communications and Computer Sciences
9. IEEE Communications Letters
10. EURASIP Journal on Wireless Communications and Networking (EURASIP JWCN)

11. Journal of Combinatorial Theory Series A

I have also served as a referee for an article in Applied Algebra, Algebraic Algorithms, and Error Correcting Codes (AAECC-17), 2007 and also served as a reviewer for book proposal from John Wiley & Sons, UK, 2010.

Professional Reviewer:

I serve on the pannel of reviewers for the following:

1. Natural Sciences and Engineering Research Council of Canada (NSERC), [Reviewer](#) since 2007
2. Association for Computing Machinery (ACM), [Computing Reviews](#) since November 2005
3. American Mathematical Society (AMS), [Mathematical Reviews](#) since November 2005

PROFESSIONAL AFFILIATIONS

I am currently affiliated (or have been affiliated in past) with the following:

1. American Mathematical Society (AMS).
2. Institute of Electrical and Electronic Engineers (IEEE).
3. IEEE Computer Society.
4. IEEE Communications Society.
5. IEEE Society of Information Theory.
6. The International Society for Computational Biology.
7. The International Association for Cryptologic Research.
8. International Society for Nanoscale Science, Computation and Engineering (ISNSCE)

TEACHING EXPERIENCE

1. Fall 2010: Introduction to Natural Computing, DA-IICT, India
Class size: , class web site at [IT](#)
2. Fall 2010: Calculus and Complex Variables, DA-IICT, India
Class size: 240 students, class web site at [SC 105](#)
3. Spring 2010: Introduction to Coding Theory and its Applications, DA-IICT, India
Class size: 5 students, SC 461
4. Fall 2009: Calculus and Complex Variables, DA-IICT, India
Class size: 240 students, class web site at [SC 105](#)
5. Spring 2009: Topics in Bioinformatics, DA-IICT, India
Class size: 15 students, class web site at [IT 471](#)
6. Spring 2009: Error Control Codes, DA-IICT, India
Class size: 8 students, class web site at [CT 515](#)
7. Fall 2008: Calculus with Complex Variables, DA-IICT, India
Class size: 222 students, class web site [SC 216](#)
8. Fall 2008: Signals and Systems (Tutorials), DA-IICT, India
Class size: 120 students, class web site [CT 203](#)
9. Spring 2008: Topics in Bioinformatics, DA-IICT, India
Class size:7 , class web site [IT 471](#)
10. Spring 2008: Calculus with Complex Variables, DA-IICT, India
Class size: 200 students, class web site [SC 216](#)
11. Fall 2007: Foundations of Computational and Systems Biology, DA-IICT, India
Class size: 20 students, class web site [IT 470](#)
12. Fall 2007: Signals and Systems (Tutorials), DA-IICT, India
Class size: 120 students, class web site [CT 203](#)

13. Spring 2007: Algebraic Structures (Tutorials), DA-IICT, India
Class size: 240 students, class web site [SC 116](#)
14. Winter 2006: Applications of Numerical Methods in Mathematics Department, Queens University, Canada
Class size: 170 students, class web site [MATH 272](#)
15. Fall 2005: Ordinary Differential Equations in Mathematics Department, Queens University, Canada
Class size: 155 students, class web site [MATH 226](#)
16. Fall 2004: Signals and Systems in Electrical and Computer Engineering Department, Ohio State University, USA
Class size: 80 students, class web site [ECE 352](#)
17. Spring 2004: Theory of Formal Languages in Computer Science and Engineering Department, Arizona State University, USA
Class size: 45 students, class web site [CSE 457/598](#)
18. Spring 2004: Introduction to theoretical computer science in Computer Science and Engineering Department, Arizona State University, USA
Class size: 69 students, class web site [CSE 355](#)
19. Fall 2003: Computer Organization and Architecture in Computer Science and Engineering Department, Arizona State University, USA
Class size: 45 students, class web site [CSE 330](#)
20. Spring 2003: Design and analysis of algorithms in Computer Science and Engineering Department, Arizona State University, USA
Class size: 65 students, class web site [CSE 450/598](#)
21. Fall 2002: Introduction to theoretical computer science in Computer Science and Engineering Department, Arizona State University, USA
Class size: 60 students, class web site [CSE 355](#)
22. 2001: Teaching Associate in a honors course Math 433 (Coding Theory) at University of Canterbury, Christchurch, New Zealand
23. 1993-2000: Teaching Associate in several 1st and 2nd year courses and honors courses in calculus, linear algebra, probability and statistics at Indian Institute of Technology, Kanpur, India.
As a Faculty at DA-IICT, India I have given guest lectures in the following courses:
24. Guest Lectures on **Quantum Cryptography** in a course on Introduction to Cryptography, Spring 2010
25. Guest Lectures on **Network Coding** in a course on Introduction to Sensor Networks, Spring 2007

ADMINISTRATIVE EXPERIENCE

1. Board Member 2008-Present Indo-American Educational Society, United States-India Educational Foundation (USIEF)
2. Member IEEE Exec. Committee 2009 Computer Society, Gujarat section
3. Founding Member 2007-Present CEID (Center for Entrepreneurship & Incubation, DA-IICT)
4. Coordinator 2007-Present SIGMa (Special Interest Group in Mathematics & its Appl.), DA-IICT
5. Faculty Mentor 2007-2008 20 Undergraduate Students of First Year, DA-IICT
6. Member 2007-Present Placement Committee, DA-IICT
7. Member 2007-Present Web Committee, DA-IICT
8. Coordinator 2007 Summer Research Internships, DA-IICT
9. Faculty Coordinator 2007-2009 Moodle Courses, DA-IICT
10. Member 2006-2007 PG Admission Committee, DA-IICT

11. Member 2006-2007 ICT Committee, DA-IICT
12. Coordinator 1998-1999 Web Page Design Committee, Math, IIT Kanpur
13. Seminar Convener 1997-1998 Stamatics, Mathematics Department, IIT Kanpur
14. Member 1997-1998 Postgraduate Committee, Math, IIT Kanpur
15. Member 1998-1999 Department Library Committee, Math, IIT K
16. Member 1997-1998 Hall Executive Committee, Hall-5, IIT K
17. Election Officer 1998-1999 Hall-5, IIT Kanpur
18. Representative 1996-1997 Astronomy Club, Hall-5, IIT Kanpur

Additional Information and Recent Activities

1. I have supervised 52 students in different projects (2007-2009) and currently supervising 10 students. A list with thesis title is at [students with thesis title](#)
2. I have served as a representative scientist to the Canadian Society for Systems Biology white paper in 2006.
3. I have served as an Associate Investigator, Quantum Error Correction Project (Aotearoa), New Zealand, July 2002-September 2003
4. I have served as a member of faculty recruitment committee for Bioinformatics Department at Indian Institute of Advanced Research, Koba, Gandhinagar, India, December 2007
5. I have served as an Examiner for Viva in PG Diploma in Bioinformatics program at Gujarat University on May 3, 2007
6. I have served as an invited dignitary guest for Brain Storming Session on Bioinformatics Sector Development in Gujarat of Gujarat State Biotechnology Mission (GSBTM) on October 8, 2007
7. I attended the NEN-Stanford Entrepreneurship Faculty Development Course (Module-1) in Bombay in July 2007
8. I have also discovered various interesting sequences of integers. For example see sequence number A 060195 in the Sloane's On-Line Encyclopedia of Integer Sequences at <http://www.research.att.com/~njas/sequences/index.html>
<http://www.research.att.com/~njas/sequences/index.html>
9. I am maintaining the list of tables web site for all kind of codes and related things at http://www.guptalab.org/mankg/public_html/WWW/bound.html
10. My Erdos Number is 2 (M.K. Gupta--C.J. Colbourn--P. Erdos) for details see Erdos No. Page <http://www.oakland.edu/enp/>
11. My mathematical genealogy is at <http://genealogy.math.ndsu.nodak.edu/html/id.phtml?id=46560>

