G. P. Raja Sekhar

Curriculum Vitae

Present Position and Address

Dr. G. P. Raja Sekhar
Professor
Department of Mathematics
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Indian Institute of Technology Kharagpur
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Academic Qualifications

1997 **Ph.D. (Mathematics: Fluid Mechanics)**, *University of Hyderabad*.

1993 **M. Phil. (Applied Mathematics: Fluid Mechanics)**, *University of Hyderabad*.

1992 **M. Sc. (Applied Mathematics)**, *University of Hyderabad*.

1990 **B. Sc. (Mathematics, Physics, Chemistry)**, *Andhra University*.

1987 **Intermediate (Class 12) (Mathematics, Physics, Chemistry)**, *Board of Intermediate Education, Andhra Pradesh*.

1985 **S. S. C (Class 10)** , *Board of Secondary Education, Andhra Pradesh*.

Academic Experience

August 2019- as on date, ***Professor on HAG Scale***, Department of Mathematics, IIT Kharagpur.

August 2011- August 2019, ***Professor***, Department of Mathematics, IIT Kharagpur.

April 2007 - August 2011, ***Associate Professor***, Department of Mathematics, IIT Kharagpur.

January, 2009 - December, 2009, ***Sabbatical Leave***, Institute for Applied Analysis and Numerical Simulation, University of Stuttgart, Germany on Alexander von Humboldt Fellowship for Experienced Researchers..

June 2002 - April 2007, ***Assistant Professor***, Department of Mathematics, IIT Kharagpur.

December 2000 - June 2002, ***Visiting Faculty***, Department of Mathematics, IIT Kharagpur.

November 1998 -December 2000, ***JSPS Post-Doctoral Fellow***, Department of Applied Physics, Tokyo University of Agri. & Tech., Japan.

January 1997-November 1998, ***Guest Faculty***, Department of Mathematics & Statistics, University of Hyderabad.

Teaching & Research Experience

- 25 years of research experience

Please see Appendix at the end of this document list of subjects taught

Research Specializations

- PDE Theory and Applications
- Fluid Mechanics
- Boundary Integral Methods

Current Area Of Research

- Biphasic mixture theory to deformable porous media
- Thermocapillary migration of viscous drops
- Modeling flow through anisotropic porous media
- Multiphase flows

Awards, Honors and Recognitions

2021 **Academic Secretary**, *Indian Mathematical Society (IMS)*.

2020 **Fellow**, *National Academy of Science India (NASI)*, Allahabad, India.

2018 **JBS Gold Medal**, *Indian Academy of Mathematical Modeling and Simulation*, in the name of Professor J B Shukla, IIT Kanpur, India.

2018 **Mathematician of the year**, *Ponnala Trust Instituted at National Institute of Technology*, Warangal, Telangana State, India.

2017 **Fellow**, *Andhra Pradesh Akademi of Sciences*, Andhra Pradesh Akademi of Sciences, Amaravati, Andhra Pradesh, India.

2016 **Citation for Bhatnagar Memorial Award Lecture**, *Indian Mathematical Society (IMS)*, 82nd Annual Conference of IMS.

2008 - 2010 **Alexander Von Humboldt Fellowship** for Experienced Researchers by Alexander Von Humboldt Foundation, Germany

2004 **Royal Society (United Kingdom) - INSA** Visiting Scientist

2002 **INSA** (Indian National Science Academy) Young Scientist Award in Mathematical Sciences

1998 - 2000 **Japan Society for The Promotion of Science** (JSPS) Fellowship

1994 - 1997 **SRF** (Senior Research Fellow) of CSIR-UGC, India

1992 - 1994 **JRF** (Junior Research Fellow) of CSIR-UGC, India

1993 95.85 percentile in (Graduate Aptitude Test in Engineering), **GATE**

1990 5th rank in **AP Mathematical Olympiad** at PG level

Doctoral Students Supervision

Completed

2021 **Abyaya Dhar**
Hydrodynamics of active swimmers: Modelling and Analysis
Joint Supervison with Dr. P S Burada, Department of Physics, I I T Kharagpur

2021 **Sueet Millon Sahoo**
Exact solutions to certain hyperbolic partial differential equations with source terms and their applications
Joint Supervison with Dr. T Raja Sekhar I I T Kharagpur

2020 **Meraj Alam**
Existence and uniqueness results for biphasic mixture models to tumors

2020 **Prakash Kumar**
Elastohydrodynamics of deformable porous media for applications in tissue engineering

2020 **Tufan Ghosh**
Mathematical modeling of two-phase flow through homogeneous and heterogeneous reservoirs
Joint Supervison with Prof. D. Deb, Department of Mining Engineering, I I T Kharagpur

2019 **Nirupam Ghosh**
Analytic and geometric characterizations of certain subclasses of harmonic functions
Joint Supervison: Major contribution by Dr A V Rao, School of Basic Sciences, I I T Bhubhaneshwar as I have joined only during the last one and a half year of completion

2019 **Chandra Sekhar Nishad**
Non-Primitive Boundary Element Method for Stokes and Brinkman Flows through Channels

2019 **V Sharanya**
Migration of viscous droplets in reduced gravity under Marangoni effects

2019 **Timir Karmakar**
Effect of anisotropic permeability on fluid flow inside linear and non-linear porous geometries

2017 **Bibaswan Dey**
Modeling transport of fluids and macromolecules inside biological tissues using theory of mixtures

2012 **Kamal Chandra Das**
Enriched Finite Element Method and Applications in Reinforced jointed rock mass
Joint Supervison with Prof. D. Deb, Department of Mining Engineering, I I T Kharagpur

2010 **Jai Prakash**
Hydrodynamics and Intraparticle Nutrient transport inside porous pellets
Joint Supervison with Prof. S. De, Department of Chemical Engineering, I I T Kharagpur

2005 **M K Partha**
Analytical investigation of some problems in porous media
Joint Supervison with Prof. P V S N Murthy, Department of Mathematics, I I T Kharagpur

2004 **Anindita Bhattacharyya**
Viscous flows and potential flows past different porous bodies
Joint Supervison Prof. J C Misra, Department of Mathematics, I I T Kharagpur

Ongoing

3 **Rupali Sharma**
Joined July 2022
Multi-phase flow models

2 **Shiba Biswas**
Joined September 2020
Active droplets - Modelling and simulation
Joint-Supervisor: Dr. P S Burada, Department of Physics, I I T Kharagpur

1 **Arindam Basak**
Joined September 2020
CFD applications to porous media
Joint-Supervisor: Dr. Rajaram Lakkaraju, Department of Mechanical Engineering, I I T Kharagpur

Administrative Positions at IIT Kharagpur

1 November 2020 - till date: **Dean (Faculty of Sciences)** I I T Kharagpur

1 January 2020 - 31 January 2021: **Dean (Planning and Coordination)** I I T Kharagpur

November 2020 - January 2021: **Dean (Continuing Education)** I I T Kharagpur

1 January 2018 - 8 January 2020: **Chairman, Career Development Centre** I I T Kharagpur

Member, JAM Academic Committee (JAC) 2020, representing IIT Kharagpur

Chairman, Vision 2030 Document Committee, IIT Kharagpur

June 2018 - till date: **Convenor, All IIT Placement Committee (AIPC)**

1 January 2016 - 31 December 2017: **Vice-Chairman, Career Development Centre** I I T Kharagpur

2015: **Member, Admission Committee for joint M.Tech./MCP - PhD Programme, Session 2015-2016** I I T Kharagpur

1 January 2015 - 31 January 2017: **Member, SRIC Research Council, Management, Mathematical and Social Sciences Group** I I T Kharagpur

July 2014 - July 2016: **Member, RPEC (Research Program Evaluation Committee)** I I T Kharagpur

2014: **Convener, GATE Academic Standing Committee**, constituted by GATE National Coordination Board, IITs

1 July 2013 - 30 June 2014: **Organizing Chairperson, GATE 2014**

1 June 2013 - 30 June 2014: **Chairman, GATE/JAM 2014** I I T Kharagpur

1 July 2012- 30 June 2013: **Vice-Chairman, GATE/JAM 2013** I I T Kharagpur

1 July 2011 - 30 June 2012: **Vice-Chairman, GATE/JAM 2012** I I T Kharagpur

2012: **Member, Support Group, preparing Vision 2020 statement** I I T Kharagpur

2011: **Member, Support Group, Governance Structure and Support Team 2011** I I T Kharagpur

1 October 2010 - 30 June 2011: **Vice-Chairman, JAM 2011** I I T Kharagpur

2008-2009: **Member, Institute Curriculum Review Committee (SOM Committee)** I I T Kharagpur

June 2011 - December 2011; July 2005 - July 2007: **Time Table In-Charge, Department of Mathematics** I I T Kharagpur

Jan 2010 - December 2010: **Member, Time-Table Committee, Department of Mathematics** I I T Kharagpur

July 2007 - December 2008: **Training and Placement In-Charge, Department of Mathematics** I I T Kharagpur

8 July 2005 - 4 January 2006; 1 October 2007 - 30 November 2008 MMM **Assistant Warden, Madan Mohan Malaviya Hall of Residence** I I T Kharagpur

01 August 2002 - 30 June 2004: **Assistant Warden, Meghnad Saha Hall of Residence** I I T Kharagpur

Expert Member - National Committees

Visitor's Nominee for Mathematics at IIT Hyderabad nominated by the President of India, 8 December 2021 - 7 December 2024

Visitor's Nominee for Mathematics at IIT Delhi nominated by the President of India, 15 January 2021 - 14 January 2024

Visitor's Nominee, Basic Science Group for National Institutes of Technology (NITs), by Ministry of Human Resource Development (MHRD), Government of India, 9 August 2018 - 8 August 2021; Extended from 27 April 2022 for 6 months

Member, JAM Syllabus Revision Committee for Joint Admission to M.Sc. at IITs and IISc. 2021

Member, Expert Committee for Mathematical Sciences, Science and Engineering Board (SERB), Government of India, 2019 - 2020

Member, Expert Committee for Mathematical Research Impact-Centric Centric Support Scheme (MATRICS) under Science and Engineering Board (SERB), Government of India, 2019

Co-opted Member, Programme Advisory Committee on Mathematical Sciences under Science and Engineering Board (SERB), Government of India, 2016 - 2018

Service to Academies/Societies

Member, International Union of Theoretical and Applied Mechanics - National Committee, nominated by Indian National Science Academy (INSA), New Delhi, India, 2016 - 2019; 2020 - 2023

December 2017 - 2020: **Executive Member, Indian Mathematical Society (IMS)**, India

2020: **President, Indian Society of Theoretical and Applied Mechanics (ISTAM)**

Member, National Academy of Sciences India (NASI), Allahabad, India

Life Member, Indian Society for Theoretical and Applied Mechanics (ISTAM), IIT Kharagpur, India

December 2016 - December 2018: **Executive Member, Indian Academy of Mathematical Modeling and Simulation (IAMMS), India**

January 2010 -January 2013: **Secretary, Indian Society of Theoretical and Applied Mechanics (ISTAM)**

2006 - 2008: **Treasurer, Indian Society of Theoretical and Applied Mechanics (ISTAM)**

2004 - 2006 : **Executive Member, Indian Society of Theoretical and Applied Mechanics (ISTAM)**

External Member at National level

2019 **Member, Academic Audit, Department of Mathematics and Computational Sciences, NITKarnataka**, Surathkal, India

2019 **Member, Academic Audit, Department of Mathematics, NIT Bhopal**, Bhopal, India

2019 **Member, Academic Audit, Department of Mathematics, NIT Nagpur**, Nagpur, India

2018 **Member, Result Processing Committee, Telangana State Council of Higher Education (TSCHE)**, Hyderabad, India

2017 **Member, Conduct of Computer Based Test, Andhra Pradesh State Council of Higher Education (APSCHE)**, Hyderabad, India

December 2017 - till date : **Member, Board of Studies, Department of Applied Mathematics, Andhra University, Visakhapatnam**, Andhra Pradesh, India

December 2017 - till date : **Member, Board of Studies, Department of Engineering Mathematics, Andhra University**, Visakhapatnam, Andhra Pradesh, India

December 2017 - till date : **Member, Board of Studies, Department of Basic Science, Shri Vishnu Engineering College for Women**, Bhimavaram, Andhra Pradesh, India

July 2016 - 2019 : **Member, Board of Studies, Department of Mathematics, Pragathi College of Engineering**, Kakinada, Andhra Pradesh, India

June 2016 - 2018 : **Member, Board of Studies, Department of Mathematics, ANITS College of Engineering**, Visakhapatnam, Andhra Pradesh, India

January 2016 - 2019 : **Eminent Educationist Member, Vidyalaya Management Committee (VMC), Kendriya Vidyalaya**, IIT Kharagpur

2012 - 2013 : **Member, Board of Studies, GITAM Institute of Technology; GITAM Institute of Science, GITAM University**, Visakhapatnam, Andhra Pradesh

Sponsored Research Projects

2019 - 2022 CSIR, Govt. of India, 25(0298)/19/EMR-II, 16-05-2019
Modeling Pre-lens and Post-lens Tear Film: Anisotropic Porous Medium Approach
Rs. 21, 63, 000 (surrendered)
Funded by Council of Scientific and Industrial Research, Govt. of India.

2017-2020 MTR/2017/000265, 18.12.2017
Mathematical modelling of articular cartilage in knee joint and endothelial glycocalyx in an artery using anisotropic porous media
Rs. 6, 60, 000 (Fixed grant scheme)
Funded under Mathematical Research Impact Centric Support (MATRICS) by Science and Engineering Research Board (SERB)- DST, Govt. of India.

2017 - 2020 SERB-EMR/2016/000879, 13.01.2017
Locomotion of Microorganisms under external gradients
Rs. 24, 12, 630
Co-P.I: Prof. P S Burada, Department of Physics, IIT Kharagpur

2008 - 2011 CSIR, Govt. of India; 25(0162)/08/EMR-II, Dt. 17.01.2008
Singularity Methods for Stokes Flows in Presence of Rigid / Porous Planar Interface
Rs. 7, 56, 000

2007 - 2010 DST, Govt. of India; SR/S4/MS:405/07, Dt. 12.09.2007
Boundary Integral Work Bench for Viscous Flows through Porous Mediaj
Rs. 9, 32, 880
Co-PI: Dr. N. Gnaneshwar, Department of Mathematics, I I T Kharagpur

2006 - 2009 (Co-PI): DST, Govt. of India, SR/S3/ME/043/2005-SERC-ENGG, Dt. 06.12.2006
Development and Implementation of Extended Finite Element Method (X-FEM) for Modeling Cohesive Discontinuities
Rs. 16, 34, 640
P.I: Dr. D. Deb, Co-P.I:Prof. K U M Rao, Department of Mining Engg., I I T Kharagpur

NPTEL Courses

1 **Modeling Transport Phenomena of Micro-particles** - Joint with Prof. S Bhattacharyya - online video course (MOOCS) offered in 2017, Ministry of Human Resource Development (MHRD), Government of India, https://nptel.ac.in/courses/111/105/111105099/

2 **Numerical Solutions of ODE and PDE** - Independent online video course, Ministry of Human Resource Development (MHRD), Government of India, https://nptel.ac.in/courses/111/105/111105038/

Visits Abroad

1. **Alexander von Humboldt Fellow**, University of Stuttgart, 1 January 2009-31 December 2009; 10 May-17 July 2011; 10 May-10 July 2015, 6 May - 28 June 2018 (with intermedite visits to University of Bremen, Germany).
2. **Research Visit**, Oxford University, University of Cambridge, Birmingham University, UK, 16 May - 10 June, 2016; 8 May 2006 - 14 July 2006.
3. **Research visit**, Babes-Bolyai University, Cluj-Napoca, Romania, 23- 29 November 2009; 4 - 9 June 2018.
4. **ICTAM**, Adelaide, Australia, 25-29 August 2008.
5. **GAMM**, University of Bremen, Germany, 30 March-4 April, 2008.
6. **Visiting Scientist**, POSTECH, South Korea, 10-17 February, 2007.
7. **Visiting Academic Staff**, University of Birmingham, U K, 8 May-14 July, 2006.
8. **Visiting Scientist**, Cambridge University, U K, 20 September-20 December 2004.
9. **Research visit**, Oxford University, U K on 24 October & 19 November 2004.
10. **Seminar**, University of Birmingham, U K, 23 November 2003.
11. **Visiting Scientist**, POSTECH, Pohang, South Korea, 10-23 February, 2003.

12. **4th World Congress for Nonlinear Analysts**, Orlando, Florida during 30 June-7 July, 2004.
13. **JSPS Postdoctoral Fellow**, Tokyo University of Agri. and Tech., Japan, November 1998 -December 2000.

Invited / Guest/ Plenary / Keynote - lectures

61. Guest Speaker 20 March 2021 The Art of doing Research-a Key Step for a Successful Research Proposal at Telangana Social Welfare Research Council (TSWRC), Hyderabad, India
60. Symposium Speaker 12 - 15 October 2020 Advances in Differential Equations and Numerical Analysis (ADENA 2020) - Department of Mathematics - IIT Guwahati, India
59. Invited Speaker 21 - 26 September 2020 One week workshop on ODEs, PDEs, and Integral Equations: Their Engineering Context, Department of Mathematics, NIT Uttarakhand, India.
58. Invited Speaker 16 - 20 September 2020 One-week Online Short Term Course (e-STC) on Numerical Solutions of Differential Equations, Department of Mathematics, NIT Jalandhar, India.
57. Invited Speaker 9 - 13 August 2020 Five Day National Webinar on Fluid Dynamics from Mathematicians viewpoint, Department of Mathematics, School of Science, GITAM University, Hyderabad, India.
56. Invited Speaker 28 - 30 June 2020 International conference on Mathematical Modelling in Applied Sciences (ICMMAS 2020), Dibrugarh University, Assam, India.
55. Invited Speaker - 26th June 2020 National Webinar on Mathematical applications on Differential Equations, Sir CR Reddy College, Eluru, Andhra Pradesh, India.
54. Invited Speaker - 20th June 2020 National Webinar on Recent developments in mathematics and its applications, Uttara Andhra Society for Mathematical Sciences (UASMS), Visakhapatnam & Prof. S. Minakshi Sundaram Memorial Andhra Pradesh, India.
53. Invited Speaker - 20 February 2020, UGC-SAP DSA - I programme, School of Mathematics and Statistics, University of Hyderabad, Hyderabad, India.
52. Invited Speaker - 20 - 21 February 2020, Workshop on Physics of Fluids: Methods and Applications, Department of Mathematics, GITAM University, Hyderabad, India.
51. Invited Speaker - 21 January 2020, International Conference on Analysis, Algebra, Combinatorics and their Applications (ICAACA - 2020), Department of Mathematics, Jadavpur University, India.
50. Plenary Lecture - 9 August 2019, International Conference on Mathematical Sciences and Applications (ICMSA), Department of Mathematics, GITAM University, Hyderabad, India.

49. Invited Speaker - 26 July 2019, Conference on Recent Advances in Mathematics, Midnapore College, Midnapore, West Bengal, India.
48. Invited Speaker - 6-8 May 2019, National Workshop on Advanced Numerical Techniques and its applications, Graphic Era Hill University, Dehradun, India.
47. Invited Speaker - 28 February 2019, International Conference on Recent Inventions and Innovations in Mathematical Sciences, Department of Applied Mathematics, Andhra University, Visakhapatnam, India.
46. Invited Speaker - 1 - 2 March 2019, Physics of Fluids Methods and Applications, Department of Mathematics, GITAM University, Hyderabad, India.
45. Invited Speaker - 1 - 2 February 2019, UGC SAP Sponsored International Conference on Mathematical Modeling in Science and Engineering (ICMMSE 2019), Department of Mathematics, Bharathiar University, Coimbatore, India.
44. Invited Speaker - 22 Dec 2018, Annual National Symposium on Mathematics and applications during Birthday celebrations of Srinivasa Ramanujam, Department of Mathematics, IIT Madras, Chennai, India.
43. Visitor's Seminar - 13 Dec 2018, Department of Mathematics, IIT Guwahati, Guwahati. India.
42. Invited Speaker - 12 Dec 2018, DST-INSPIRE Science Camp 11 - 14 Dec 2018, NIT Silchar, Silchar, India.
41. Invited Speaker - 3 Dec 2018, International Conference on Mathematical Modeling and Computations (ICMMC-2018), 1 - 3 Dec 2018, South Asian University, New Delhi, India.
40. Visiting Speaker - 23rd July 2018, Department of Mathematics, NIT Bhopal, Bhopal, India.
39. Invited Speaker - 13 June 2018, Department of Mathematics, TU Kaiserslautern, Germany
38. Visiting Speaker - 4 - 9 June 2018, Department of Mathematics and Computer Science, Babyes-Bolyai University, Cluj-Napoca, Romania.
37. Speaker - Lagrange Day Celebrations, 24-25 January 2018, Department of Mathematics, IIT Guwahati, Guwahati, India.
36. Invited Speaker, International Conference on Recent Advances in Mathematical Sciences and Applications, 19-22 December 2017, GVP College of Engg., Visakhapatnam , India.
35. Paper presentation, 83rd Annual Conference of Indian Mathematical Society, 12-15 December 2017, S V University, Tirupati, India.
34. Poster presentation, Humboldt Colloquium on "Germany and India - partners in Education and Research, 23-26 November 2017, Benguluru, India.
33. Invited Speaker, National Conference on Essence of Mathematics and Engineering Applications, 17-18 November 2017, KL University, Guntur, Andhra Pradesh, India.
32. Invited Speaker, AP Science Congress, 7-11 November 2017, Andhra University, Visakhapatnam, India.

31. Invited Speaker, Workshop on Mathematics, 5-6 October 2017, Mrs. AVN College, Visakhapatnam, India.
30. Invited Speaker, China India Korea Japan Mathematical Biology Colloquium cum Conference, 23-26 August 2017, IIT Kanpur India.
29. Speaker, Popular lectures to young students and teachers of schools and colleges in the remote / rural areas across India - an initiative by INSA, 3 - 6 July 2017, ZPH School, St. Joseph's College for Women (Vizianagaram); ZPH School, Mahatma Jyotibaphule BC Welfare Residential School, Adavivaram (Visakhapatnam), Andhrapradesh, Visakhapatnam, India.
28. Speaker, Mathematics Workshop for Navy School Teachers, 14-15 June 2017, Navy Children School, Visakhapatnam, India.
27. P L Bhatnagar Memorial Award Lecture, Annual Congress of Indian Mathematical Society, 24-30 Dec 2016, Kalyani University, West Bengal, India.
26. Plenary talk, Conference on Latest Advances in Computational and Applied Mathematics, 15-17 December 2016, Mahindra-Ecole-Centrale, Hyderabad, India.
25. Invited Speaker, Two Day UGC National Conference on Recent advances in Mathematics and its applications, 16-19 Nov 2016, St Joseph's College, Visakhapatnam, India.
24. Phanidar Datta Memorial Lecture,Gauhati University, Department of Mathematics, IIT Guwahati, 12 Nov 2016
23. Invited Speaker, 11 November 2016, Department of Mathematics, IIT Guwahati, Assam, India.
22. Invited Speaker, Faculty Development Programme, 26 - 28 June 2016, Department of Mathematics, KIIT University, Bhubhaneshwar, India.
21. Invited Speaker, National Conference on Recent Developments in Numerical Techniques and its applications,7-8 April 2016, NIT Patna, India.
20. Invited Speaker, International Conference on Computational, Mathematical and Biological modeling, 25 - 26 March, 2016, Sri Padmavati Mahila University, Tirupati, India.
19. Invited Speaker, Andhra Pradesh Mathematical Society Annual Congress and National Conference on Recent Developments in Mathematical Science and their Applications to Science and Technology,11-14 December 2015, VBIT,Hyderabad,India.
18. Thursday Invited Speaker, 2 July 2015, Faculty of Mathematics, Technical University of Dortmund, Germany.
17. Thursday Invited Speaker, 25 June 2015, Institute of Applied Analysis and Numerical Simulation, University of Stuttgart, Germany.
16. Invited Speaker, Science Academy's Lecture Workshop on Concept of Fluid Mechanics and its Applications (CFDA-2014), 10 October 2014, Department of Applied Mathematics, ISM Dhanbad, India.

15. Invited Speaker, Real time Engineering Applications for Mathematics(REAM-2014), 25 - 29 November 2014, Shri Vishnu Engineering College for Women (Bhimavaram), Andhra Pradesh, India.
14. Invited Speaker, National Conference on Mathematical Trends in Physical Sciences, 13 August 2014, Heritage Institute of Technology, Kolkata, India.
13. Invited Speaker, Workshop on Advanced Computational Mathematics (Sponsored by TEQIP II), 23 - 27 June 2014, Department of Mathematics, National Institute of Jamshedpur, India.
12. Resource Person, Faculty Development Programme on Analytical and Numerical techniques in Applied Mathematics and Engineering, 30 July 2014, Malnad Engineering College, Hassan, Karnataka, India.
11. Invited Speaker, National conference on Emerging Trends in Mathematical Sciences and Engineering Applications, 23rd- 24th May, 2014, Department of Mathematics, JNTU Kakinada, India.
10. Invited lecture, Prof. S. Minakshisundarm Birth Centenary celebrations, a "National Seminar on Emerging trends in Applied Mathematics (NSETAM-2014)" on 4-5, April 2014, Andhra University, Visakhapatnam, India.
9. Keynote Speaker, 4th International Congress on Computational Mechanics and Simulation, 9-12 December 2012, IIT Hyderabad, India.
8. Invited Speaker, 4 October 2012, Department of Applied Mathematics, Defence Institute of Advanced Technology, Pune, India.
7. Invited Speaker, Workshop on recent trends in partial differential equations and applications, 18-19, March 2012, University of Hyderabad, India.
6. Invited Lecture as a Mentor at the DST-INSPIRE Programme during 28 June - 2 July 2011, KIIT, Bhubaneshwar, India.
5. Invited Lecture at the National Conference on Recent Trends in Applications of Mathematics in Science and Technology, 15 - 16 April 2011, GITAM University, Visakhapatnam, India.
4. Invited Lecture as a part of the Science Day celebrations during 4 - 5 March 2011, GITAM University, Visakhapatnam, India.
3. Invited Lecture during the UGC sponsored National Symposium on Applications of Various Techniques in Fluid Dynamics, 10-12 February 2011, BSNV PG College, Lucknow University, India.
2. Invited Lecture as a Mentor at the DST-INSPIRE Programme during 30 October - 2 November 2010, NIST, Berhampur, India.
1. Invited Lecture during the 4th World Congress for Nonlinear Analysts, 30 June-7 July, 2004, Orlando, Florida, USA.

Participation

ICM 2010 at Hyderabad as a delegate

Organizing Conferences/Workshops

Organizing Secretary: 85th Annual Conference of Indian Mathematical Society (IMS) 2019, 22 - 25 November 2019,

Co-ordinator: AICTE sponsored short term course on Linear Algebra and Differential Equations, 24 - 28 August 2018(other Co-ordinators: Dr T Raja Sekhar, Dr Rajesh Kannan)

Co-ordinator: TEQUIP sponsored short term course on Differential Equations - Theory, Computation and Applications February 27-March 03,2017 (other Co-ordinator: Dr J Kumar)

Co-ordinator: Ongoing Memorandum of Understanding, University of Bremen, Germany.

Secretary, 57th congress of ISTAM, 17-20 December 2012, DIAT Pune, India.

Secretary, National Meet of Research Scholars in Mathematical Sciences (DST), IIT Kharagpur, 12-15 October 2011.

Secretary, 56th congress of ISTAM, 19-2 December 2011, SVNIT Surat, India.

Secretary, 55th congress of ISTAM, 19-22 December 2010, NIT Hamirpur, India.

Organizer, Workshop on Interfaces in Multiphase Flow, 1-2 July, 2010, University of Stuttgart, Germany.

Convenor, Regional Symposium of Mathematics 2010, IIT Kharagpur , 15-17 January 2010.

Organized a workshop "GANITH", 3 July 2005, Adivivaram Gurukula Patasal, Visakhapatnam.

Organized a workshop "GANITH", 7,8 May 2005, Chodavaram, Visakhapatnam.

Joint-Secretary, ICADS 2002, IIT Kharagpur , 22- 24, December 2002.

Secretary, Mathworx 2002, IIT Kharagpur , 13 - 14 July 2002.

Secretary, POLYGON (Mathematics Workshop), IIT Kharagpur, 13 October 2001.

Member, Organizing Committee, Mathworx 2k+1 (Mathematics Workshop), IIT Kharagpur, 14-15 July 2001.

Publications accepted/appeared in refereed Journals

Author(s)|Title |Name of Journal|VolumePage|Year

101. **Tufan Ghosh, Yashwanth Kumar Gujjala, D Deb, Raja Sekhar, G. P.**, *Numerical investigation of spontaneous imbibition in an anisotropic reservoir*, **Geomechanics and Geophysics for Geo-Energy and Geo-Resources, (Springer Nature)**, 8, 100, (2022).
https://doi.org/10.1007/s40948-022-00411-4

100. **Timir Karmakar, Meraj Alam, Raja Sekhar, G. P.**, *Analysis of Brinkman-Forchheimer extended Darcy's model in a fluid saturated anisotropic porous channel*, **Communications on Pure and Applied Analysis, (American Institute of Mathematical Sciences)**, (2021) doi/10.3934/cpaa.2022001.

99. **Osamu Sano, Timir Karmakar, Raja Sekhar, G. P.**, *Viscous flow around 3D macroscopic cavities in a granular material*, **Journal of Fluid Mechanics, (Cambridge University Press)**, 931, A20 (2022).

98. **Sharanya V, Sri Padmavati B, Raja Sekhar, G. P.** , *Transient Stokes flow past a spherical droplet with a stagnant cap due to contaminated surfactant layer*, **Theoretical and Computational Fluid Dynamics, (Springer)**, (2021) https://doi.org/10.1007/s00162-021-00592-w.

97. **Abyaya Dhar, P S Burada, Raja Sekhar, G.P.**, *Effective medium model for a suspension of active swimmers*, **Physics of Fluids, (American Institute of Physics)**, 33, 091906 (2021) https://doi.org/10.1063/5.0062290.

96. **Chandra Shekhar Nishad, K G Vijay, S Neelamani, G P Raja Sekhar**, *Dual boundary element analysis for a pair of inverted T-type porous barriers having nonlinear pressure drop* , **Waves in Random and Complex Media, (Taylor-Francis)**, https://doi.org/10.1080/17455030.2021.1948145 (2021).

95. **Bibaswan Dey, Raja Sekhar, G. P.**, *Mathematical modeling of electrokinetic transport through Endothelial-cell glycocalyx* , **Physics of Fluids (American Institute of Physics)** , (2021).

94. **Nirupam Ghosh, Timir Karmakar, Raja Sekhar, G. P.**, *Application of conformal mapping to two-dimensional flows in an anisotropic aquifer*, **Indian Journal of Pure and Applied Mathematics (Springer)** , (2021).

93. **Meraj Alam, Helen Byrne, Raja Sekhar, G. P.**, *Existence and uniqueness results on biphasic mixture model for an in-vivo tumor*, **Applicable Analysis (Taylor-Francis)** , https://doi.org/10.1080/00036811.2021.1895122 (2021).

92. **Prakash Kumar, Raja Sekhar, G. P.**, *Mathematical modeling of elastodynamics and cell growth inside a deformable scaffold fitted to the periphery of a bioreactor*, **Mathematical Methods in the Applied Sciences (Wiley)**, https://doi.org/10.1002/mma.7263 (2021).

91. **Raja Sekhar, G. P., Meraj Alam** , *Fixed Point Theorems and Applications to Fluid Flow Problems*, **The Proceedings of Telangana Academy of Sciences (Special Issue), Telangana Academy of Sciences**, 1, 134-146,(2020).

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11. G. P. Raja Sekhar, Tumor growth-chemo-mechanical modeling and existence theory, The Mathematics Student, 86, 21 - 28 (2017).
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5 **Proceedings of the 57th Congress of ISTAM** (Indian Society for Theoretical and applied Mechaincs)
Published by ISTAM, 2012

4 **Proceedings of the 56th Congress of ISTAM**
Published by ISTAM, 2011

3 **Proceedings of the 55th Congress of ISTAM**
Published by ISTAM, 2010

2 **Mathematical Analysis and Applications**
Co-author: S Nanda
Narosa Publishing House, New Delhi, 2004

1 **Combinatorial and Computational Mathematics**
Co-author: S Nanda
Narosa Publishing House, New Delhi, 2004

Appendix - Subjects Taught at UG and PG Level

Course Number & Title	UG / PG Level	Year(s) in which taught
MA10001 Mathematics – I (Calculus-I)	UG Level	2018*, 2019
MA10002 Mathematics-II (Calculus-II)	UG Level	2001, 2002 2003, 2004, 2005*, 2006, 2015*
MA 20005 / MA20103 Partial Differential Equations	UG Level	2005, 2010*, 2011, 2014*, 2015, 2016*, 2017*
MA 40011 / MA 51003 Fluid Mechanics	UG & PG Level	2007,2011,2012, 2013, 2014, 2016, 2017
MA61051 Modern Theory of PDEs This course is developed by me	PG Level	2012, 2014
MA 51006 Boundary Element Methods MA 61028 Boundary Integral Methods This course is developed by me	UG /PG Level	2011, 2012, 2013, 2014, 2015, 2016, 2018
MA 61028 Boundary Integral Methods	UG /PG Level	2019, 2020, 2021, 2022
MA40002 / MA 51004 Integral Equations and Variational Methods	UG & PG Level	2017
TS61002 Hydrodynamics at Low Reynolds Number	PG Level	2017, 2018
MA 30110 Advanced Numerical Techniques	UG Level	2014
TS 70007 Advanced Mathematical Techniques	PG Level	2014, 2015
MA 51005 Analytical Mechanics	PG Level	2008
MA 40012 / MA 41006 Complex Analysis	UG & PG Level	2006
MA 30003 / MA 41003 Linear Algebra	UG & PG Level	2003
MA 60059 Advanced Numerical Analysis	PG Level	2002, 2014, 2016, 2020, 2021
MA30004 Real Analysis	UG Level	2001
MA 20001 Numerical Solutions of ODE & PDE	UG Level	2003, 2004, 2005*, 2006
MA 23011 Design and Analysis of Algorithms and Lab	UG Level	2002, 2003, 2004, 2005, 2006
MA 21005/ MA21007 Design and Analysis of Algorithms	UG Level	2007, 2008, 2010
MA 29005 Design and Analysis of Algorithms Lab	UG Level	2007, 2008, 2010
MA 60003 / MA 60002 Data Structures and Algorithms	PG Level	2001, 2002, 2003, 2004, 2005,2007, 2008,2010
MA 69002 Data Structures and Algorithms Laboratory	PG Level	2001, 2002, 2003, 2004, 2005,2007, 2008,2010, 2013,2017
MA31004 Finite Automata & Formal Languages	UG Level	2010, 2011
MA 60045 Formal Languages & Theory of Computation	UG & PG Level	2002
MM553 Classical Mechanics	PG Level	1998
AM551 Numerical Analysis	PG Level	1997
MM502 Discrete Mathematics	PG Level	1997

* Co-ordinator when more than one teacher is taught