



G. P. Raja Sekhar

Curriculum Vitae

Present Position and Address

Dr. G. P. Raja Sekhar
Professor (HAG Scale)
Department of Mathematics
Indian Institute of Technology Kharagpur
Kharagpur 721 302

Phone: 03222-283684

Fax: 03222-255303

E-mail: rajas@iitkgp.ac.in

rajas@maths.iitkgp.ac.in

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

- 26 years 11 months of teaching and research experience

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

Research Specializations

- Partial Differential Equation - Theory and Applications
- Fluid Mechanics - Theory and applications

Current Area Of Research

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

Awards, Honors and Recognitions

- 2023 **National Mathematician of the Year**, *Ponnala Trust Instituted at National Institute of Technology*, Warangal, Telangana State, India.
- 2022 **Fellow**, *West Bengal Academy of Science and Technology*, Kolkata, India.
- 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.
- 2017 **Fellow**, *Andhra Pradesh Akademi of Sciences*, 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 (Indian National Science Academy)** Visiting Scientist
- 2002 **INSA** 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 **Andhra Pradesh Mathematical Olympiad** at PG level

Contribution towards implementing National Education Policy (NEP 2020)

- As Coordinating Dean for the Academic Year 2021-22, instrumental in the implementation of the revised curricula of IIT Kharagpur which is prepared taking into account the NEP 2020.
- Expert Talk, Workshop on Implementation of National Education Policy 2020 with special reference to National Credit Framework (NCrF), NIT Rourkela, 5-6 May 2023
- Expert Talk, Workshop on National Education Policy 2020, NIT Meghalaya, 11 December 2023
- Keynote Speaker, International Workshop on Vedic Mathematics, School of Technology, 17 October 2023, Woxsen University, Hyderabad, India
- Invited Speaker, Webinar jointly organized by Shiksha Sanskriti Uthan Nyas, New Delhi and IIT Kharagpur on "Online Teaching and Learning in the domain of Technical Education in India: Opportunities and Challenges", 10 July, 2021

Administrative Positions and Experience at National Level

- June 2018 - **Convenor, All IIT Placement Committee (AIPC)**
- February 2019: Coordinated all the Professor - in - Charges / Chairpersons of Training and Placement departments across all the IITs - common policies to be followed uniformly, spokesperson for training and placement matters across all the IITs.
- 1 July 2013 - **Organizing Chairperson, GATE 2014**
- 30 June 2014: Responsibilities: coordinated the complete end to end solution to organize GATE 2014 across the country. This was the first fully computer based examination for all the subjects in the history of GATE. This was conducted in coordination with all the IITs, IISc. and Ministry of Human Resource Development.
- 2014: **Convener, GATE Academic Standing Committee**, constituted by GATE National Coordination Board, IITs
- 2020: **Member, JAM Academic Committee (JAC) 2022, Joint Admission Test for Masters (JAM)**

- 2020: **Member, JAM Academic Committee (JAC) 2020, Joint Admission Test for Masters (JAM)**
- 2020: **Member, JAM Syllabus Revision Committee 2021, Joint Admission Test for Masters (JAM)**

Administrative Positions at IIT Kharagpur: Institute Level

- 1 November 2020 - 31 December 2022: **Dean (Faculty of Sciences; Faculty of Humanities Social and Economic Sciences), IIT Kharagpur**
Handled Academic and Recruitment matters related to Faculty members; Academic Matters related to UG, PG and PhD - for Academic Units within the division of Sciences and Humanities Social and Economic Sciences. Coordinated UGPEC, PGPEC, RPEC and Senate matters, coordinated the implementation of revised curricula along the lines of NEP 2020.
- 1 January 2020 - 31 January 2021: **Dean (Planning and Coordination), IIT Kharagpur**
Handled activities related to International and National Rankings, Institute of Eminence (IoE), Annual Report and other non-financial planning. Coordinated with IoE Secretariat for the IoE matters.
- November 2020 - January 2021: **Dean (Continuing Education), IIT Kharagpur**
Handled activities related to the Office of Continuing Education Programme, NPTEL.
- April 2023 - November 2023: **Chairman, Steering Committee, Technology Vision 2047 - Brainstorming Workshop, IIT Kharagpur**
Organized Technology Vision 2047 - Brainstorming Workshop on 1 - 2 June 2023 where eminent experts from institutes, industry, academia, students, faculty participated. This was sponsored by TIFAC-DST and IIT Kharagpur. The themes are: Energy, Environment & Climate Change, Affordable Healthcare, Advanced Materials, Advanced Transportation, Precision Agriculture & Food Nutrition
- 2021: **Chairman, Vision 2030 Document Committee, IIT Kharagpur**
Coordinated the preparation of the Vision 2030 document of IIT Kharagpur
- August 2020 - January 2021: **Member, Apex Body of Institute Of Eminence, IIT Kharagpur**
Coordinated the IoE matters of IIT Kharagpur with the IoE Secretariat, Ministry of Education
- 2022: **Prof.-incharge, 68th Convocation, IIT Kharagpur**
Coordinated the complete end to end logistics for smooth conduct of the Convocation 2022
- 2021: **Co-Prof.-incharge, 67th Convocation, IIT Kharagpur**
Assisted the coordination of the complete end to end logistics for smooth conduct of the Convocation 2021

- 1 January 2018 - 8 January 2020: **Chairman, Career Development Centre, IIT Kharagpur**
Coordinated placement and training (summer internship) matters with all the stakeholders involved (students, corporate and industries, academic units). Managing the complete strategy for the better placement, establishing long term relationship with the industry. Took initiatives for CV building module, Data verification module, CDC handbook, devising Company Relation Index.
- 1 January 2016 - 31 December 2017: **Vice-Chairman, Career Development Centre, IIT Kharagpur**
Supported placement and training (summer internship) matters involving all the stakeholders (students, corporate and industries, academic units). Assisting in the strategy for better placement, establishing long term relationship with the industry.
- 2015: **Member, Admission Committee for joint M.Tech./MCP - PhD Programme, Session 2015-2016 IIT Kharagpur**
- 1 January 2015 - 31 January 2017: **Member, SRIC Research Council, Management, Mathematical and Social Sciences Group, IIT Kharagpur**
- July 2014 - July 2016: **Member, RPEC (Research Program Evaluation Committee), IIT Kharagpur**
- 1 June 2013 - 30 June 2014: **Chairman, GATE/JAM 2014, IIT Kharagpur**
Managed smooth conduct of the GATE and JAM examinations within the zone of IIT Kharagpur
- 1 July 2012 - 30 June 2013: **Vice-Chairman, GATE/JAM 2013, IIT Kharagpur**
Assisted the smooth conduct of the GATE and JAM examinations within the zone of IIT Kharagpur
- 1 July 2011 - 30 June 2012: **Vice-Chairman, GATE/JAM 2012, IIT Kharagpur**
Assisted smooth conduct of the GATE and JAM examinations within the zone of IIT Kharagpur
- 2012: **Member, Support Group, preparing Vision 2020 statement, IIT Kharagpur**
- 2011: **Member, Support Group, Governance Structure and Support Team 2011, IIT Kharagpur**
- 1 October 2010 - 30 June 2011: **Vice-Chairman, JAM 2011, IIT Kharagpur**
Assisted smooth conduct of the JAM examination within the zone of IIT Kharagpur
- 2008-2009: **Member, Institute Curriculum Review Committee (SOM Committee), IIT Kharagpur**
- 1 October 2007 - 30 November 2008: **Assistant Warden, Madan Mohan Malaviya Hall of Residence, IIT Kharagpur**
Lead the Maintenance matters and Mess matters of the hall
- 8 July 2005 - 4 January 2006: **Assistant Warden, Madan Mohan Malaviya Hall of Residence, IIT Kharagpur**
Lead the Maintenance matters and Mess matters of the hall

01 August 2002 - 30 June 2004: **Assistant Warden, Meghnad Saha Hall of Residence, IIT Kharagpur**
Lead the Maintenance matters and Mess matters of the hall

Administrative Positions at IIT Kharagpur: Departmental Level

October 2023 - June 2024: **Chairman, Departmental Purchase Committee, Department of Mathematics, IIT Kharagpur**

July 2020 - June 2021: **Member, Departmental Administrative Committee, Department of Mathematics, IIT Kharagpur**

July 2019 - June 2020: **Member, Departmental Administrative Committee, Department of Mathematics, IIT Kharagpur**

July 2019 - June 2020: **PGPEC Representative, Department of Mathematics, IIT Kharagpur**

July 2016 - June 2017: **PIC Annual Report, Department of Mathematics, IIT Kharagpur**

July 2016 - June 2017: **RS Coordinator, Department of Mathematics, IIT Kharagpur**

July 2012 - June 2017: **Faculty Advisor, 5 Year Integrated M.Sc. Batch of 2012-2017, Department of Mathematics, IIT Kharagpur**

July 2005 - July 2007: **Time Table In-Charge, Department of Mathematics, IIT Kharagpur**

June 2011 - December 2011: **Time Table In-Charge, Department of Mathematics, IIT Kharagpur**

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

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

Expert Member - National Committees

Member, Expert Committee for Mathematical Sciences, FIST Programme, Science and Engineering Board (SERB), Government of India, July 2022 - July 2025

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

Member, UGC Expert Committee, Reviewing violation of minimum standards and procedures for awarding Ph.D degree and recommending measures, University Grants Commission, March - July 2023

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; 27 April - 26 January 2023

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

Executive Council Member, Indian Mathematical Society, 2017 - 2024

Executive Council Member, Indian Society for Mathematical Modeling and Computer Simulation, 2022 - 2024

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

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

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

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

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

External Member at National level

2023 - 2024 : **Member, Board of Studies, Department of Mathematics, GITAM University, Hyderabad, Andhra Pradesh, India**

- 2022 **Member, Academic Audit, Department of Mathematics and Computing, IIT(ISM), Dhanbhad, India**
- 2022 **Member, Academic Audit, Department of Mathematics, NIT, Bhopal, India**
- 2019 **Member, Academic Audit, Department of Mathematics and Computational Sciences, NIT Karnataka, 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, Hyderabad, India**
- 2017 **Member, Conduct of Computer Based Test, Andhra Pradesh State Council of Higher Education, 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**

Doctoral Students Supervision

Completed

- 2021 **Abyaya Dhar**
Hydrodynamics of active swimmers: Modelling and Analysis
Joint Supervision with Dr. P S Burada, Department of Physics, IIT Kharagpur
- 2021 **Sueet Millon Sahoo**
Exact solutions to certain hyperbolic partial differential equations with source terms and their applications
Joint Supervision with Dr. T Raja Sekhar IIT 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 Supervision with Prof. D. Deb, Department of Mining Engineering, IIT Kharagpur
- 2019 **Nirupam Ghosh**
Analytic and geometric characterizations of certain subclasses of harmonic functions
Joint Supervision: Major contribution by Dr A V Rao, School of Basic Sciences, IIT Bhubhaneshwar as I have joined only during the last one and a half year of completion of the thesis
- 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 Supervision: Prof. D. Deb, Department of Mining Engineering, IIT Kharagpur
- 2010 **Jai Prakash**
Hydrodynamics and Intraparticle Nutrient transport inside porous pellets
Joint Supervision: Prof. S. De, Department of Chemical Engineering, IIT Kharagpur
- 2005 **M K Partha**
Analytical investigation of some problems in porous media
Joint Supervision: Prof. P V S N Murthy, Department of Mathematics, IIT Kharagpur
- 2004 **Anindita Bhattacharyya**
Viscous flows and potential flows past different porous bodies
Joint Supervision: Prof. J C Misra, Department of Mathematics, IIT 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, IIT Kharagpur

1 **Arindam Basak**

Joined September 2020

CFD applications to porous media

Joint-Supervisor: Dr. Rajaram Lakkaraju, Department of Mechanical Engineering, IIT Kharagpur

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 due to the mis-management from CSIR)
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-PI: Dr. 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 Media
Rs. 9, 32, 880
Co-PI: Dr. N. Gnaneshwar, Department of Mathematics, IIT 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., IIT 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/>

Editorial Activities

Nov 2023 - Nov 2026 **Associate Editor** Journal of Engineering Mathematics (Springer)
 August 2023 - August 2025 **Managing Editor** Differential Equations and Dynamical Systems (Springer)
 2022 - 2025 **Member, Editorial Board** Journal of Indian Mathematical Society

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. **Thursday 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

103. Guest Speaker, 9 November 2023, Christopher Day School, Kharagpur, India
102. Distinguished Speaker, 4- 6 November 2023, International Conference on Exploring Excellence in Mathematical Sciences, Nalanda University, India
101. Keynote Speaker, International Workshop on Vedic Mathematics, 17 October 2023, School of Technology, Woxsen University, Hyderabad, India
100. Colloquium Speaker, 13 October 2023, Department of Mathematics, IISER Tirupati, India
99. Invited Speaker, 12 October 2023, Department of Mathematics, IIT Tirupati, India
98. Invited Speaker, 11 October 2023, Department of Mathematics, IISER Tirupati, India
97. Keynote Speaker, International Conference on Recent Advances in Fluid Mechanics and Nanoelectronics, 12 - 14 July 2023, Manipal Institute of Technology Bengaluru, India
96. Guest Speaker, Mathematics Department Colloquium, 1 July 2023, Adikavi Nannaya University, Rajahmahendravaram, India
95. Keynote Speaker, International Conference on Innovations And Developments In Mathematical Sciences And Technology, 28 - 30 June 2023, Sri Krishnadevaraya University, Anantapur, India
94. Keynote Speaker, International Conference on Mathematical Modelling and Emerging Trends in Computing, 23 - 25 June 2023, Woxsen University, Hyderabad, India
93. Guest Speaker, 20 June 2023, School of Mathematics and Statistics, University of Hyderabad, India
92. Core Expert, Three Day Workshop on Physics of Fluids: Methods and Applications, 19 - 21 June 2023, GITAM University, Hyderabad, India
91. Guest Speaker, 12 June 2023, Department of Mathematics, CMR Institute, Bengaluru, India
90. Guest Visitor, 8 - 10 June 2023, Department of Mathematics, IISc Bengaluru, India
89. Guest Speaker, 23 May 2023, Department of Applied Mathematics, DIAT Pune, India
88. Invited Speaker, Symposium on Advanced Mathematical Modelling and Computing, 3 - 4 March 2023, Department of Mathematics, IIT Jodhpur, India

88. Keynote Speaker, International Conference on Mathematical Modeling 27 - 28 January 2023, Bharathiar University, India
87. Invited Speaker, International Conference on Applied Mathematical Sciences, 13 November 2022, Gujarat University and Parul University, India
86. Invited Speaker, International Conference on Impending Inquisitions In Humanities and Sciences, 28 - 30 November 2022, KL University Hyderabad, India
85. Invited Speaker, International Conference on Applied Mathematics and Computational Sciences, 12 - 14 October 2022, DIT University, Dehradun, India
84. Invited Speaker, International Conference on Mathematical Sciences and Emerging Applications in Technology - APTSMS, 9 - 11 September 2022, GITAM University, India
83. Guest Speaker, Mathematics Colloquium Inauguration, 7 September 2022 Mahindra University, Hyderabad, India
82. Keynote Speaker, Ed-Conclave, Tech Fest, 4 September 2022, IIT Bombay, India
81. Invited Speaker, International Conference on Advancements in Engineering and Sciences, 2 July 2022, Graphic Era Hill University, Dehradun, India
80. Expert Speaker, Workshop on Hands-on-Training on Solving Differential Equations in Engineering Sciences, 23 June 2022, Department of Mathematics, NIT Uttarakhand, India
79. Core Expert, Workshop on Physics of Fluids - Theory and Applications, 9 - 11 June 2022 GITAM University, Hyderabad, India
78. Keynote Speaker, 2nd B R Seth Memorial Lecture, 7 June 2022 , Dibrugarh University, India
77. Invited Speaker, FDP for UG and PG teachers on Mathematical Modeling, 6 - 11 April 2022, Sarojini Naidu Vanita Maha Vidyalaya, Hyderabad, India
76. Invited Speaker, International Conference on Analysis and Discrete Mathematics, 26-27 March 2022, Odisha Mathematical Society, India
75. Invited Speaker, Dr. Paarivendhar Research Colloquium, 24 - 26 March 2022, SRM Institute of Science and Technology, India
74. Invited Speaker, International Conference on Advances in Mechanics, Modeling, Computing and Statistics, 19-21 March 2022, Department of Mathematics, BITS Pilani, India
73. Invited Speaker, Refresher Course in Mathematics & Statistics under UGC-HRDC, 24 January - 5 February 2022, Gauhati University, India
72. Invited Speaker, International Symposium on Mathematical Sciences and their applications, 28 - 29 January 2022, Yogi Vemana University, Andhra Pradesh, India

71. Invited Speaker, 4th International Conference on Recent Advances in Mathematical Sciences and Applications, 24 - 27 December 2021, Gayatri Vidya Parishad College of Engineering and GVP-Prof. V. Lakshmikantham Institute for Advanced Studies, in association with International Federation of Nonlinear Analysts
70. Invited Speaker, International Conference on Recent Trends in Mathematics, 2 - 3 December 2021, GITAM University, Bengaluru, India
69. Invited Speaker, Indo-Norwegian workshop Computational Challenges and Modelling of Coupled Processes, 2 October 2021, in Porous Media, University of Bergen Norway, IIT Kanpur, IIT Patna
68. Guest Speaker, 11 September 2021 BITS-Pilani Hyderabad, India
67. Guest Speaker, Workshop on Research Proposal Writing, 20 March 2021, Telangana Social Welfare Research Council, Hyderabad, India
66. Invited Speaker, National Webinar on Recent Evolutions in Mathematics, 21 - 22 December 2020, Department of Applied Mathematics, Sri Padmavathi Mahila Viswa Vidyalaya, India
65. Invited Speaker, 86th Annual Conference of Indian Mathematical Society, 20 December 2020, VIT Vellore, India
64. ISTAM Presidential Lecture, 65th Congress of ISTAM, 9 December 2020, GITAM University Hyderabad, India
63. Invited Speaker, Workshop on Numerical and Analytical Techniques in Engineering problems, 12 - 13 November 2020, SRM Institute of Science and Technology, Kattankulathur, India
62. Symposium Speaker, Advances in Differential Equations and Numerical Analysis, 12 - 15 October 2020, Department of Mathematics, IIT Guwahati, India
61. Invited Speaker, One week workshop on ODEs, PDEs, and Integral Equations: Their Engineering Context, 21 - 26 September 2020, Department of Mathematics, NIT Uttarakhand, India.
60. Invited Speaker, One-week Online Short Term Course (e-STC) on Numerical Solutions of Differential Equations, 16 - 20 September 2020, Department of Mathematics, NIT Jalandhar, India
59. Invited Speaker, Five Day National Webinar on Fluid Dynamics from Mathematicians viewpoint, Department of Mathematics, School of Science, 9 - 13 August 2020, GITAM University, Hyderabad, India
58. Plenary Speaker, International conference on Mathematical Modelling in Applied Sciences, 28 - 30 June 2020, Dibrugarh University, Assam, India
57. Invited Speaker, National Webinar on Mathematical applications on Differential Equations, 26 June 2020, Sir CR Reddy College, Andhra Pradesh, India
56. Invited Speaker, National Webinar on Recent developments in mathematics and its applications, 20 June 2020, Uttara Andhra Society for Mathematical Sciences, Visakhapatnam & Prof. S. Minakshi Sundaram Memorial Andhra Pradesh, India

55. Invited Speaker, Two day National Webinar on Application of Mathematical Sciences in Real life, 13 - 14 May 2020, Department of Mathematics, Mrs. A V N College, Visakhapatnam, India
54. Invited Speaker, UGC-SAP DSA - I programme, 20 February 2020, School of Mathematics and Statistics, University of Hyderabad, Hyderabad, India
53. Invited Speaker, Workshop on Physics of Fluids: Methods and Applications, 20 - 21 February 2020, Department of Mathematics, GITAM University, Hyderabad, India
52. Invited Speaker, International Conference on Analysis, Algebra, Combinatorics and their Applications, 21 January 2020, Department of Mathematics, Jadavpur University, India
51. Guest Speaker, Mathematics Colloquium, 12 September 2019, School of Mathematical Sciences, IIT Bhubaneshwar, India
50. Plenary Lecture, International Conference on Mathematical Sciences and Applications - APTSMS, 9 -11 August 2019, Department of Mathematics, GITAM University, Hyderabad, India
49. Invited Speaker, Conference on Recent Advances in Mathematics, 26 July 2019, Midnapore College, Midnapore, West Bengal, India
48. Invited Speaker, National Workshop on Advanced Numerical Techniques and its applications, 6-8 May 2019, Graphic Era Hill University, Dehradun, India
47. Invited Speaker, Workshop on Physics of Fluids Methods and Applications, 1 - 2 March 2019, Department of Mathematics, GITAM University, Hyderabad, India
46. Invited Speaker, International Conference on Recent Inventions and Innovations in Mathematical Sciences, 28 February 2019, Department of Applied Mathematics, Andhra University, Visakhapatnam, India
45. Invited Speaker, UGC SAP Sponsored International Conference on Mathematical Modeling in Science and Engineering, 1 - 2 February 2019, Department of Mathematics, Bharathiar University, Coimbatore, India
44. Invited Speaker, Annual National Symposium on Mathematics and applications during Birthday celebrations of Srinivasa Ramanujam, 22 December 2018, Department of Mathematics, IIT Madras, Chennai, India
43. Visitor's Seminar, 13 December 2018, Department of Mathematics, IIT Guwahati, India
42. Invited Speaker, DST-INSPIRE Science Camp 11 - 14 December 2018, NIT Silchar, India
41. Invited Speaker, International Conference on Mathematical Modeling and Computations, 1 - 3 December 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, Babes-Bolyai University, Cluj-Napoca, Romania
37. Guest Speaker, Lagrange Day Celebrations, 24-25 January 2018, Department of Mathematics, IIT Guwahati, India
36. Invited Speaker, International Conference on Recent Advances in Mathematical Sciences and Applications, 19-22 December 2017, GVP College of Engineering, Visakhapatnam, India
35. Invited Speaker, National Conference on Essence of Mathematics and Engineering Applications, 17-18 November 2017, KL University, Guntur, Andhra Pradesh, India
34. Guest Speaker, Faculty Development programme, 18 November 2017, Dhanekula Institute of Engineering and Technology, Vijayawada, Andhra Pradesh, India
33. Invited Speaker, AP Science Congress, 7-11 November 2017, Andhra University, Visakhapatnam, India
32. Guest Speaker, 13 October 2017, Department of Mathematics, NIT Rourkela, 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. Invited Speaker, Mathematics Workshop for Navy School Teachers, 14-15 June 2017, Navy Children School, Visakhapatnam, India
28. Expert Speaker, 7th Research Scholars' Day, 1 April 2017, Department of Physics, IIT Kharagpur, India
27. P L Bhatnagar Memorial Award Lecture, 82nd Annual Congress of Indian Mathematical Society, 24-30 December 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 November 2016, St Joseph's College, Visakhapatnam, India
24. Phanidar Datta Memorial Lecture, 12 November 2016, Gauhati University, India
23. Invited Speaker, 11 November 2016, Department of Mathematics, IIT Guwahati, India

22. Invited Speaker, National Conference on Recent Trends in Mathematics and Statistics 28 - 29 September 2016, P R Govt. College, Kakinada, 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, 10 October 2014, Department of Applied Mathematics, ISM Dhanbad, India
15. Invited Speaker, Real time Engineering Applications for Mathematics, 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 (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, 23 - 24 May, 2014, Department of Mathematics, JNTU Kakinada, India
10. Invited Speaker, Prof. S. Minakshisundarm Birth Centenary celebrations, National Seminar on Emerging trends in Applied Mathematics, 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 Speaker, Mentor at the DST-INSPIRE Programme during 28 June - 2 July 2011, KIIT Bhubaneshwar, India
5. Invited Speaker, National Conference on Recent Trends in Applications of Mathematics in Science and Technology, 15 - 16 April 2011, GITAM University, Visakhapatnam, India
4. Invited Speaker, Science Day celebrations, 4 - 5 March 2011, GITAM University, Visakhapatnam, India
3. Invited Speaker, UGC sponsored National Symposium on Applications of Various Techniques in Fluid Dynamics, 10 - 12 February 2011, BSNV PG College, Lucknow University, India
2. Invited Speaker, Mentor at the DST-INSPIRE Programme during 30 October - 2 November 2010, NIST, Berhampur, India
1. Invited Speaker, 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, 22 - 25 November 2019, IIT Kharagpur, India

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

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

Co-ordinator: Memorandum of Understanding, (2007 - 2015) 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), 12-15 October 2011 IIT Kharagpur, India

Secretary, 56th congress of ISTAM, 19 - 22 December 2011, SVNIT Surat, India

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

Co-ordinator, Workshop on Interfaces in Multiphase Flow (Other Co-ordinator: Prof. Christina Rohde), 1 - 2 July, 2010, University of Stuttgart, Germany

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

Organizer Workshop "GANITH", 3 July 2005, Adivivaram Gurukula Patasala, Visakhapatnam, Andhra Pradesh, India

Organizer Workshop "GANITH", 7 - 8 May 2005, Chodavaram, Visakhapatnam, Andhra Pradesh, India

Joint-Secretary, International Conference on Analysis and Discrete Structures, 22 - 24 December 2002, IIT Kharagpur, India

Secretary, Workshop "Mathworx", 13 - 14 July 2002, IIT Kharagpur, India

Secretary, Workshop "POLYGON", 13 October 2001, IIT Kharagpur, India

Member, Organizing Committee, Workshop "Mathworx", 14 - 15 July 2001, IIT Kharagpur, India

Publications accepted/appeared in refereed Journals

- | Author(s) | Title | Name of Journal | Volume | Page | Year |
|--|---|---|------------|-------------|----------------|
| 109. Arindam Basak, Rajaram Lakkaraju, Raja Sekhar, G. P., | <i>Thermocapillary dynamics of a surfactant-laden droplet with internal thermal singularity,</i> | Journal of Fluid Mechanics, (Cambridge University Press), | 973 A24, | 1 - 31 | (2023). |
| 108. Timir Karmakar, Meraj Alam, Motahar Reza, Raja Sekhar, G. P., | <i>Couette-Poiseuille flow in a fluid overlying an anisotropic porous layer,</i> | Computers and Mathematics with Applications, (Elsevier), | 151, | 346 - 358 | (2023). |
| 107. Osamu Sano, Timir Karmakar, Raja Sekhar, G. P., | <i>Viscous flow around three-dimensional macroscopic cavities in a granular material: asymptotic theory for two sufficiently distant spherical cavities of arbitrary configuration,</i> | Journal of Fluid Mechanics, (Cambridge University Press), | . 964, A6, | 1 - 33 | (2023). |
| 106. Shiba Biswas, P S Burada, Raja Sekhar, G. P., | <i>Hydrodynamics of a slip-stick sphere with a non-axisymmetric patch,</i> | Physics of Fluids (American Institute of Physics), | 35, | 033613, | 1 - 18 (2023). |
| 105. Timir Karmakar, Swarup Barik, Raja Sekhar, G. P., | <i>Multi-scale analysis of concentration distribution in unsteady Couette–Poiseuille flows through a porous channel,</i> | Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, (The Royal Society Publishing), | A479, | 20220494, | 1 - 22 (2023). |
| 104. H. S. Mahato, Raja Sekhar, G. P., | <i>A homogenization approach to the effect of surfactant concentration and interfacial slip on the flow past viscous drops,</i> | Applicable Analysis, (Taylor - Francis), | 102:18, | 5170 - 5194 | (2023). |
| 103. Sueet Millon Sahoo, T. Raja Sekhar, Raja Sekhar, G. P., | <i>Wave interactions in pressureless Cargo–LeRoux model with flux perturbation,</i> | Mathematical Methods in the Applied Sciences, (Wiley), | 46, | 8663-8679 | (2023). |
| 102. Rahul Barthwal, T. Raja Sekhar, Raja Sekhar, G. P., | <i>Construction of solutions of a two-dimensional Riemann problem for a thin film model of a perfectly soluble antisurfactant solution,</i> | Mathematical Methods in the Applied Sciences, (Wiley), | 46, | 7413 - 7434 | (2023). |

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, 1 - 22 (2022).
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), 21, 845 - 865 (2022).
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, 1 - 27 (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), 35, 783 – 806 (2021).
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, 1 - 12 (2021) .
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)** , 33, 081902, 1 - 23 (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)** , 53, 617 – 626 (2022).
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)** , 101, 5442 - 5468 (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)**, 44, 7304 - 7332 (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).
90. **Abyaya Dhar, P S Burada, Raja Sekhar, G. P.,** *Hydrodynamics of an inertial active droplet*, **Journal of Fluid Mechanics** (Cambridge University Press), 904, A28, 1-21,(2020).

89. **Tufan Ghosh, Raja Sekhar, G. P.**, *A note on Mellin-Fourier integral transform technique to solve Stokes' problem analogue to flow through a composite layer of free flow and porous medium*, **Journal of Mathematical Analysis and Applications (Elsevier)**, 483, 123578, 1 - 12, (2020).
88. **Abyaya Dhar, P S Burada, Raja Sekhar, G. P.**, *Hydrodynamics of active particles confined in a periodically tapered channel*, **Physics of Fluids (American Institute of Physics)**, 32, 102005, 1-12 (2020).
87. **Prakash Kumar, Raja Sekhar, G. P.**, *Elastohydrodynamics of a deformable porous packing in a channel competing under shear and pressure gradient*, **Physics of Fluids (American Institute of Physics)**, 32, 061901, 1 - 22 (2020).
86. **S M Sahoo, T.Raja Sekhar, Raja Sekhar, G. P.**, *Optimal classification, Exact solutions and Wave interactions of Euler system with large friction*, **Mathematical Methods in the Applied Sciences (Wiley)**, 43, 5744 - 5757 (2020).
85. **Tufan Ghosh, Carina Bringedal, Rainer Helmig, Raja Sekhar, G P**, *Up-scaled equations for two-phase flow in highly heterogeneous porous media: varying permeability and porosity*, **Advances in Water Resources (Elsevier)**, 145, 103716, 1 - 24 (2020).
84. **Tufan Ghosh, Raja Sekhar, G. P., D Deb**, *Non-classical flow modeling of spontaneous imbibition in spatially heterogeneous reservoirs*, **Computational Geosciences (Springer)**, 24, 1445 – 1461 (2020).
83. **Prakash Kumar, Raja Sekhar, G. P.**, *Analysis of elastohydrodynamics and nutrient transport through deformable porous scaffold inside a hollow fibre membrane bioreactor*, **Physics of Fluids (American Institute of Physics)**, 32, 031904, 1 - 23 (2020).
82. **Abyaya Dhar, P S Burada, Raja Sekhar, G. P.**, *Dynamics of a spherical droplet driven by active slip and stress*, **International Journal of Multiphase Flow (Elsevier)**, 127, 103274, 1 - 13 (2020).
81. **Timir Karmakar, M Reza, Raja Sekhar, G. P.**, *Forced convection in a fluid saturated anisotropic porous channel with isoflux boundaries*, **Physics of Fluids (American Institute of Physics)**, 31, 117109, 1 - 12 (2020).
80. **Abyaya Dhar, P S Burada, Raja Sekhar, G. P.**, *Self-propulsion of a sticky sphere partially covered with a surface slip velocity*, **Physics of Fluids (American Institute of Physics)**, 31, 112004, 1 - 12 (2020).
79. **M Reza, Raja Sekhar, G. P.**, *Analysis and control of shear flow over a rotating plate in the presence of magnetic field*, **ZAMM - Journal of Applied Mathematics and Mechanics (Wiley)**, 100:e201800044, 1 - 15 (2020).
78. **Tufan Ghosh, Raja Sekhar, G. P., D Deb**, *Modeling of Co-current Spontaneous Imbibition Oil Recovery from Partially Covered Homogeneous Hydrocarbon Reservoir*, **Transport in Porous Media (Springer)**, 130, 947 - 968 (2019).

77. **S M Sahoo, T.Raja Sekhar, Raja Sekhar, G. P.**, *Exact solutions of generalized Riemann problem for nonhomogeneous shallow water equations* , **Indian Journal of Pure and Applied Mathematics (Springer)**, 51, 1225 - 1237 (2020).
76. **Jai Prakash, Raja Sekhar, G. P.**, *Effective viscosity of a concentrated suspension of composite porous spherical particles* , **Meccanica (Springer)**, 54, 799 - 813 (2019).
75. **Chandra Shekhar Nishad, Timir Karmakar, Anirban Chandra, Raja Sekhar, G. P.**, *A non-primitive boundary integral formulation for modeling flow through composite porous channel* , **Engineering Analysis with Boundary Elements (Elsevier)**, 109, 94 - 105 (2019).
74. **Minhajul, Raja Sekhar, T., Raja Sekhar, G. P.**, *Stability of solutions to the Riemann problem for a thin film model of a perfectly soluble anti-surfactant solution* , **Communications on Pure and Applied Analysis (American Institute of Mathematical Sciences)**, 18(6), 3367- 3386 (2019).
73. **Tufan Ghosh, Raja Sekhar, G. P., D Deb**, *Mathematical modeling of co-current spontaneous imbibition in heterogeneous porous medium* , **European Journal of Mechanics - B Fluids (Elsevier)**, 76, 81 - 97 (2019).
72. **Meraj Alam, Bibaswan Dey, Raja Sekhar, G. P.**, *Mathematical modeling and analysis of hydroelastodynamics inside a solid tumor containing deformable tissue* , **ZAMM - Journal of Applied Mathematics and Mechanics (Wiley)**, 99, e201800223, 1 - 34 (2019).
71. **V Sharanya, Raja Sekhar, G. P., Christian Rohde**, *Surfactant-induced migration of a spherical droplet in non-isothermal Stokes flow* , **Physics of Fluids (American Institute of Physics)**, 31, 012110, 1 - 24 (2019).
70. **Meraj Alam, Bibaswan Dey, Raja Sekhar, G. P.**, *Mathematical analysis of hydrodynamics and tissue deformation inside an isolated solid tumor* , **Theoretical and Applied Mechanics Mechanics (Serbian Society of Mechanics)**, 45, 253 - 278 (2018).
69. **S M Sahoo, T.Raja Sekhar, Raja Sekhar, G. P.**, *Exact solutions of generalized Riemann problem for rate-type material* , **International Journal of Non-linear Mechanics (Elsevier)**, 110, 16 - 20 (2019).
68. **V. K. Narla, Dharmendra Tripathi, Raja Sekhar, G. P.**, *Time-dependent analysis of electroosmotic fluid flow in a microchannel*, **Journal of Engineering Mathematics (Springer)**, 114, 177 – 196 (2019).
67. **V Sharanya, Raja Sekhar, G. P., Christian Rohde**, *The low surface Péclet number regime for surfactant-laden viscous droplets: Influence of surfactant concentration, interfacial slip effects and cross migration*, **International Journal of Multiphase Flow (Elsevier)**, 107, 82 - 103 (2018).
66. **Timir Karmakar, Raja Sekhar, G. P.**, *Squeeze-film flow between a flat impermeable bearing and an anisotropic porous bed*, **Physics of Fluids (American Institute of Physics)**, 30, 043604, 1 - 17 (2018).

65. **Bibaswan Dey, Raja Sekhar, G. P., Sourav Kanti Mukhopadhyay**, *In-vivo Mimicking model for Solid Tumor towards Hydromechanics of Tissue Deformation and Creation of Necrosis* , **Journal of Biological Physics** (Springer), 44, 361 - 400 (2018).
64. **B. Bira, T. Raja Sekhar, Raja Sekhar, G. P.**, *Collision of characteristic shock with weak discontinuity in non-ideal magnetogasdynamics* , **Computers and Mathematics with Applications** (Elsevier), 75, 3873 - 3883 (2018).
63. **Chandra Shekhar Nishad, Anirban Chandra, Timir Karmakar, Raja Sekhar, G. P.**, *A non-primitive boundary element technique for modeling flow through non-deformable porous medium using Brinkman equation*, **Meccanica** (Springer), 53, 2333 - 2352 (2018).
62. **Prakash Kumar, Bibaswan Dey, Raja Sekhar, G. P.**, *Nutrient transport through deformable cylindrical scaffold inside a bioreactor: An application to tissue engineering* , **International Journal of Engineering Science** (Elsevier), 127, 201 - 216 (2018).
61. **Bibaswan Dey, Raja Sekhar, G. P., Burada, P. S.**, *Electrophoresis of a soft charged particle in a sparsely packed bed* , **Chemical Engineering Communications** (Taylor-Francis), 205, 991 - 1010 (2018).
60. **Raja Sekhar, G. P.**, *Tumor growth chemomechanical modeling existence theory* , **The Mathematics Student** (Indian Mathematical Society), 86, 21 - 28 (2017).
59. **Chandra Shekhar Nishad, Anirban Chandra, Raja Sekhar, G. P.**, *Stokes flow inside topographically patterned microchannel using boundary element method* , **International Journal of Chemical Reactor Engineering** (De Gruyter), 15, 1 - 17 (2017).
58. **Timir Karmakar, Raja Sekhar, G. P.**, *Effect of anisotropic permeability on convective flow through porous tube with viscous dissipation effect* , **Journal of Engineering Mathematics** (Springer), 110, 15 - 37 (2017).
57. **Timir Karmakar, Raja Sekhar, G. P.**, *A note on flow reversal in a wavy channel filled with anisotropic porous material* , **Proceedings of the Royal Society A - Mathematical and Physical Sciences** (The Royal Society Publishing), 473, 20170193: 1 - 18 (2017).
56. **Jai Prakash, Raja Sekhar, G. P.**, *Slow motion of a porous spherical particle with a rigid core in a spherical fluid cavity*, **Meccanica** (Springer), 52, 91 - 105 (2017).
55. **Timir Karmakar, Raja Sekhar, G. P.**, *Lifting a large object from an anisotropic porous bed* , **Physics of Fluids** (American Institute of Physics), 28, 093601, 1 - 22 (2016).
54. **Chandra Shekhar Nishad, Anirban Chandra and Raja Sekhar, G. P.**, *Flows in slip-patterned micro-channels using boundary element methods* , **Engineering Analysis with Boundary Elements** (Elsevier), 73, 95 - 102 (2016).

53. **V Sharanya, Raja Sekhar, G. P., Christian Rohde**, *Bed of polydisperse viscous spherical drops under thermocapillary effects*, **ZAMP - Journal of Applied Mathematics and Physics** (Springer), 67: 101, 1 - 17 (2016).
52. **Bibaswan Dey, Raja Sekhar, G. P.**, *A theoretical study on the elastic deformation of cellular phase and creation of necrosis due to the convection reaction process inside a spherical tumor*, **International Journal of Biomathematics** (World Scientific), 9, 1650095: 1 - 34 (2016).
51. **Bibaswan Dey, Raja Sekhar, G. P.**, *Hydrodynamics and convection enhanced macromolecular fluid transport in soft biological tissues: Application to solid tumor*, **Journal of Theoretical Biology** (Springer), 395, 62 - 86 (2016).
50. **Timir Karmakar, Raja Sekhar, G. P.**, *Effect of anisotropic permeability on fluid flow through composite porous channels*, **Journal of Engineering Mathematics** (Springer), 100, 33 - 51 (2016).
49. **Bibaswan Dey, Raja Sekhar, G. P.**, *An analytical study on hydrodynamics of an unsteady flow and mass transfer through a channel asymmetrically lined with deformable porous layer*, **European Journal of Mechanics B/Fluids** (Elsevier), 55, 71 - 87 (2015).
48. **Sharanya, V, Raja Sekhar, G. P.**, *Thermocapillary migration of a spherical drop in an arbitrary transient Stokes flow*, **Physics of Fluids** (American Institute of Physics), 27, 06310: 1- 21 (2015).
47. **Bibaswan Dey, Raja Sekhar, G. P.**, *Effect of axial vibration of boundary on wall shear stress and mass transfer in medium saturated with homogeneous rigid porous materials*, **Journal of Engineering Mathematics** (Springer), 89, 51 - 71 (2014).
46. **Bibaswan Dey, Raja Sekhar, G. P.**, *Mass transfer and species separation due to oscillatory flow in a Brinkman medium*, **International Journal of Engineering Science** (Elsevier), 74, 54 - 74 (2014).
45. **Choudhuri, D., Raja Sekhar, G. P.**, *Thermocapillary drift on a spherical drop in a viscous fluid*, **Physics of Fluids** (American Institute of Physics), 25, 043104, 1 - 14 (2013).
44. **Jai Prakash, Raja Sekhar, G. P.**, *Dynamic permeability of an assemblage of soft spherical particles*, **Mathematical Methods in the Applied Sciences** (Wiley Interscience), 36, 2174 - 2186 (2013).
43. **Jai Prakash, Raja Sekhar, G. P.**, *Estimation of the dynamic permeability of an assembly of permeable spherical porous particles using the cell model*, **Journal of Engineering Mathematics** (Springer), 80, 63 - 73 (2013).
42. **Debasis Deb, Kamal C. Das, Raja Sekhar, G. P.**, *Generalized Symmetric Formulation of Tangential Stiffness for Nonassociative Plasticity*, **ASCE Transactions-Journal of Engineering Mechanics** (American Society of Civil Engineers), 139, 105 - 113 (2013).
41. **Jai Prakash, Raja Sekhar, G. P.**, *Arbitrary oscillatory Stokes flow past a porous sphere using Brinkman model*, **Meccanica** (Springer), 47, 1079 -1095 (2012).

40. **Mirela Kohr, Raja Sekhar, G.P., Elena M. Ului, Wolfgang L.Wendland**, *Two-dimensional Stokes-Brinkman cell model - a boundary integral formulation*, **Applicable Analysis** (Taylor - Francis), 91, 251 - 275 (2012).
39. **Jai Prakash, Raja Sekhar, G. P., Mirela Kohr**, *Faxen's law for arbitrary oscillatory Stokes flow past a porous sphere*, **Archives of Mechanics** (Polish Academy of Sciences), 64, 41 - 63 (2012).
38. **Jai Prakash, Raja Sekhar, G. P., Sirshendu De**, *Convection-diffusion-reaction inside a permeable cylindrical porous pellet under oscillatory flow - the effect of Robin boundary condition*, **International Journal of Advances in Engineering Sciences and Applied Mathematics** (Springer), 3, 60 - 70 (2011).
37. **Jai Prakash, Raja Sekhar, G. P., Mirela Kohr**, *Stokes flow of an assemblage of porous particles-stress jump condition*, **ZAMP-Journal of Applied Mathematics and Physics** (Springer), 62, 1027 - 1046 (2011).
36. **Jai Prakash, Sirshendu De, Raja Sekhar, G. P.**, *Convection-diffusion-reaction inside a spherical porous pellet under oscillatory flow including external mass transfer*, **Fluid Dynamics Research** (Institute of Physics), 43, 015508 - 015527 (2011).
35. **Jai Prakash, Raja Sekhar, G. P., Sirshendu De**, *Dirichlet problem for convection-diffusion-reaction inside a permeable cylindrical porous pellet*, **International Journal of Engineering Science** (Elsevier), 49, 606 - 624 (2011).
34. **Jai Prakash, Raja Sekhar, G. P.**, *Overall bed permeability for flow through beds of permeable porous particles using effective medium model-stress jump condition*, **Chemical Engineering Communications** (Taylor - Francis), 198, 85 - 101 (2011).
33. **Mirela Kohr, Raja Sekhar, G. P., Wolfgang L Wendland,**, *Rigorous estimates for the 2D Oseen-Brinkman transmission problem in terms of the Stokes-Brinkman expansion*, **Mathematical Methods in the Applied Sciences** (Wiley), 33, 2225 - 2239 (2010).
32. **Jai Prakash, Raja Sekhar, G. P., Sirshendu De, Michael Böhm,**, *Convection-diffusion-reaction inside a spherical porous pellet in the presence of oscillatory flow*, **European Journal of Mechanics - B/Fluids** (Elsevier), 29, 483 - 493 (2010).
31. **Raja Sekhar, G. P.**, *Effective medium model for flow through beds of porous cylindrical fibers*, **Applicable Analysis** (Taylor - Francis), 89, 833 - 848 (2010).
30. **Jai Prakash, Raja Sekhar, G. P., Sirshendu De, Michael Böhm**, *A criterion to avoid starvation zones for convection-diffusion-reaction problem inside a porous biological pellet under oscillatory flow*, **International Journal of Engineering Science** (Elsevier), 48, 693 - 707 (2010).
29. **Anindita Bhattacharyya, Raja Sekhar, G. P.**, *Potential flow past a slightly deformed porous circular cylinder*, **Transport in Porous Media** (Springer), 81, 367 - 389 (2010).

28. **Jai Prakash, Mirela Kohr, Raja Sekhar, G. P., Wolfgang L Wendland**, *Expansions at small Reynolds numbers for the flow past a porous circular cylinder*, **Applicable Analysis** (Taylor - Francis), 88, 1093 - 1114 (2009).
27. **Bhargavi, D., Satyamurty, V. V, Raja Sekhar, G. P.**, *Effect of interfacial stress jump on skin friction and Heat transfer in flow through a channel partially filled with porous material*, **Journal of Porous Media** (Begell House), 12, 1065 - 1082, (2009).
26. **Mirela Kohr, Wolfgang L Wendland, Raja Sekhar, G. P.**, *Boundary integral equations for two-dimensional low Reynolds number flow past a porous body*, **Mathematical Methods in the Applied Sciences** (Wiley Interscience), 32, 932 - 962 (2009).
25. **Raja Sekhar, G. P., Jai Prakash, Mirela Kohr**, *Steady and oscillatory analysis of porous catalysts in fluidized beds*, **PAMM: Proc. Applied Mathematics and Mechanics** (Wiley Interscience), 8, 10613 - 0614 (2008).
24. **Mirela Kohr, Raja Sekhar, G. P., Wolfgang L Wendland**, *Boundary integral equations for a three - dimensional Stokes - Brinkman cell model*, **Mathematical Models and Methods in Applied Sciences** (World Scientific), 18, 2055 - 2085 (2008).
23. **Mirela Kohr, Raja Sekhar, G. P., Wolfgang L Wendland**, *Boundary integral method for Stokes flow past a porous body*, **Mathematical Methods in the Applied Sciences** (Wiley - Interscience), 31, 1065 - 1097 (2008).
22. **Mirela Kohr, Raja Sekhar, G. P., John Blake**, *Green's function of the Brinkman equation in a two dimensional anisotropic case*, **IMA Journal of Applied Mathematics** (Oxford University Press), 73, 374 - 392 (2008).
21. **Raja Sekhar, G. P., Anindita Bhattacharyya**, *Potential flow past a slightly deformed porous circular cylinder embedded in a porous bed*, **Journal of Porous Media** (Begell House), 11, 193 - 204 (2008).
20. **Mirela Kohr, Raja Sekhar, G. P.**, *Existence and uniqueness result for the problem of viscous flow in a granular material with a void*, **Quarterly of Applied Mathematics** (The American Mathematical Society-Brown University), 65, 683 - 704, (2007).
19. **Mirela Kohr, Raja Sekhar, G. P.**, *Existence and uniqueness result for two - dimensional porous media flows with porous inclusions based on Brinkman equation*, **Journal of Engineering Analysis with Boundary Element Methods** (Elsevier), 31, 604 - 613, (2007).
18. **Raja Sekhar, G. P., Partha, M. K., Murthy, P. V. S. N.**, *Viscous flow past a spherical void in porous media - effect of stress jump boundary condition*, **Journal of Porous Media** (Begell House), 9, 745 - 767 (2006).
17. **Partha, M. K., Murthy, P. V. S. N., Raja Sekhar, G. P.**, *Soret and Dufour effects in a non - Darcy porous medium*, **ASME Transactions - Journal of Heat Transfer** (American Society of Mechanical Engineers), 128, 605 - 610 (2006).

16. **Anindita Bhattacharyya, Raja Sekhar, G. P.**, *Stokes flow inside a porous spherical shell - stress jump boundary condition*, **ZAMP - Journal of Applied Mathematics and Physics** (Springer), 56, 475 - 496 (2005).
15. **Partha, M. K., Murthy, P. V. S. N., Raja Sekhar, G. P.**, *Viscous flow past a porous spherical shell effect of a stress jump boundary condition*, **ASCE Transactions- Journal of Engineering Mechanics** (American Society of Civil Engineers), 31, 1291 - 1301 (2005).
14. **Murthy, P. V. S. N., Partha, M. K., Raja Sekhar, G. P.**, *Mixed convection heat and mass transfer with thermal radiation in a non-Darcy porous medium*, **Journal of Porous Media** (Begell House), 8, 541 - 549 (2005).
13. **Partha, M. K., Murthy, P. V. S. N., Raja Sekhar, G. P.**, *Effect of viscous dissipation on the mixed convection heat transfer from an exponentially stretching surface*, **Heat and Mass Transfer** (Springer), 41, 360 - 366 (2005).
12. **Anindita Bhattacharyya, Raja Sekhar, G. P.**, *Effect of stress jump condition - viscous flow past a porous sphere with an impermeable core*, **Chemical Engineering Science** (Elsevier), 59, 4481 - 4492 (2004).
11. **Raja Sekhar, G. P., Sano, Osamu**, *Two - dimensional viscous flow in a granular material with a void of arbitrary shape*, **Physics of Fluids** (American Institute of Physics), 15, 554 - 567 (2003).
10. **Raja Sekhar, G. P., Sano, Osamu**, *Two-dimensional viscous flow past a slightly deformed circular cavity in porous media*, **Fluid Dynamics Research** (Elsevier), 28, 281 - 293 (2001).
9. **Padmavathi, B. S., Raja Sekhar, G. P., S.D.Nigam, Amaranath, T.**, *Group structure in circle and sphere theorems*, **ZAMM - Journal of Applied Mathematics & Mechanics** (Wiley Interscience), 8, 570 - 575 (2001).
8. **Padmavathi, B. S., Raja Sekhar, G. P., Nigam, S. D., Amaranath, T.**, *Group structure in circle theorem*, **Studies in Applied Mathematics** (Blackwell), 06, 407 - 417 (2001).
7. **Raja Sekhar, G. P., Sano, Osamu**, *Viscous flow past a circular / spherical void in porous media - an application to the measurement of the groundwater velocity through single boring method*, **Journal of Physical Society of Japan** (Physical Society of Japan), 69, 2479 - 2484 (2000).
6. **Raja Sekhar, G. P., Amaranath, T.**, *Stokes flow inside a porous spherical shell*, **ZAMP - Journal of Applied Mathematics and Physics** (Springer), 51, 1 - 10 (2000).
5. **Padmavathi, B. S., Raja Sekhar, G. P., Amaranath, T.**, *A note on general solutions of Stokes equations*, **Quarterly Journal of Mechanics & Applied Mathematics** (Oxford Journals), 51, 383 - 388 (1998).
4. **Raja Sekhar, G. P., Padmavathi, B. S., Amaranath, T.**, *Complete general solutions of the Brinkman equations*, **ZAMM - Journal of Applied Mathematics & Mechanics** (Wiley Interscience), 77, 555 - 556 (1997).

3. **Raja Sekhar, G. P., Nigam, S. D., Amaranath, T.**, *Dirichlet problem for non-axisymmetric irrotational flows*, **Indian Journal of Pure & Applied Mathematics** (Springer), 28, 423 - 427 (1997).
2. **Raja Sekhar, G. P., Amaranath, T.**, *Stokes flow past a porous sphere with an impermeable core*, **Mechanics Research Communications** (Elsevier), 23, 449 - 460 (1996).
1. **Raja Sekhar, G. P., Tejeswara Rao, K., Padmavathi, B. S., Amaranath, T.**, *Two-dimensional Stokes flows with slip-stick boundary conditions*, **Mechanics Research Communications** (Elsevier), 22, 491 - 501 (1995).

Publications in International/National Conferences

36. Swarup Barik, Timir Karmakar, Raja Sekhar, G. P., Multi-scale analysis of concentration distribution inside porous medium channel configuration, 10th International Congress on Industrial and Applied Mathematics (ICIAM), 20 - 25 August 2023, Waseda University, Tokyo, Japan
35. Arindam Basak, Rajaram Lakkaraju, Raja Sekhar, G. P., Thermocapillary dynamics of viscous droplet driven by internal thermal singularity, 10th International Congress on Industrial and Applied Mathematics (ICIAM), 20 - 25 August 2023, Waseda University, Tokyo, Japan
34. Meraj Alam, Raja Sekhar, G. P., Nonlinear biphasic mixture model: existence and uniqueness results, 10th International Congress on Industrial and Applied Mathematics (ICIAM), 20 - 25 August 2023, Waseda University, Tokyo, Japan
33. Timir Karmakar, Raja Sekhar, G. P., On flow through wavy channel filled with anisotropic porous material, 60th Indian Society of Theoretical and Applied Mechanics, MNIT Jaipur (2015).
32. Tufan Ghosh, Yashwanth Kumar Gujjala, D Deb, Raja Sekhar, G. P., Novel Reservoir Quality Index and Its Impact on the Recovery Rate, SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS21)
31. Chandra Shekhar Nishad, Raja Sekhar, G. P., Non-primitive boundary element technique for modelling flow through composite porous channel, 1st International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy, February 2020
30. Meraj Alam, Raja Sekhar, G. P., Well-posedness of a two-phase mixture model: an application to a soft tumor, Indo-German conference on Computational Mathematics: Challenges and Opportunities towards Exascale Computing, 2 - 4 December 2019, Department of Computational and Data Sciences, Indian Institute of Science, Bangalore, India
29. Meraj Alam, Raja Sekhar, G. P., Well-posedness of a two-phase mixture model: an application to a soft tumor, Indo-German conference on Computational Mathematics: Challenges and Opportunities towards Exascale Computing, 2 - 4 December 2019, Department of Computational and Data Sciences, Indian Institute of Science, Bangalore, India

28. Meraj Alam, Raja Sekhar, G. P., Biphasic mixture model to an in-vitro tumor: existence and uniqueness results, 85th Annual Conference of the Indian Mathematical Society, 22 - 25 November 2019, Department of Mathematics, IIT Kharagpur, India
27. Meraj Alam, Raja Sekhar, G. P., Mathematical modeling and analysis of hydroelastodynamics inside a solid tumor containing deformable tissue, 1st Symposium on Frontiers of Fluid Mechanics, 16th March 2019, Centre for Theoretical Studies, Indian Institute of Technology, Kharagpur, India
26. Meraj Alam, Raja Sekhar, G. P., Mechanics of Fluid Flow and Tissue Deformation inside a Solid Tumor, World Congress on Computational Mechanics, 22-27 July 2018, New York City, USA.
25. Chandra Shekhar Nishad, Raja Sekhar, G. P., A Boundary Integral Equation (BIE) Method for modeling flow through non-deformable porous medium using Brinkman Equation in terms of non-primitive variables', World Congress on Computational Mechanics / 2nd Pan American Congress, July 2018
24. Bibaswan Dey and G. P. Raja Sekhar, Function of endothelial cell-glycocalyx layer (EGL) towards blood borne micro-particle transport: An application of biphasic mixture theory, 13th World Congress of Computational Mechanics-2018 (WCCM), New York, United States, July 22- 27, 2018.
23. Timir Karmakar, Raja Sekhar, G. P., Squeeze-film flow in the presence of a thin anisotropic porous bed: an application to knee joint, 13th World Congress on Computational Mechanics, 2nd Pan American Congress on Computational Mechanics, New York, USA (2018).
22. Timir Karmakar, Raja Sekhar, G. P., Modeling of fluid flow inside a knee joint, TOPAS-2017, A National Conference on Engineering Mathematics, IIT Kharagpur (2017).
21. Meraj Alam, Raja Sekhar, G. P., Existence and uniqueness results for fluid flow inside a deformable solid tumor, 83rd Annual Conference of the Indian Mathematical Society, 12 - 15 December 2017, Sri Venkateshwara University, Tirupati, India
20. Chandra Shekhar Nishad, Raja Sekhar, G. P., Flows in out-phase slip-patterned micro-channels using boundary element methods', International Conference on Computational Methods, July 2017
19. Poster presentation, Humboldt Colloquium on "Germany and India - partners in Education and Research, 23-26 November 2017, Bengaluru, India.
18. Timir Karmakar and Raja Sekhar, G. P., Lifting a large object from an anisotropic porous bed, 24th International Congress of Theoretical and Applied Mechanics, Montreal, Canada (2016).
17. Chandra Shekhar Nishad, Raja Sekhar, G. P., Boundary element method for Stokes flow inside topographically patterned micro-channels, Indian Society of Theoretical and Applied Mathematics, December 2015

16. Bibaswan Dey and G. P. Raja Sekhar, Convection enhanced macromolecular nutrient transport through a tumor interstitial space with quadratically varying permeability layer, 8th International Congress of Industrial and Applied Mathematics-2015 (ICIAM 2015), Beijing, China. August 10-15, 2015.
15. Bibaswan Dey and G. P. Raja Sekhar, Unsteady electro-osmotic flow through a Channel lined with charged deformable porous layer, 60th congress of ISTAM-2015, MNIT Jaipur, India, December 16-19, 2015.
14. Timir Karmakar and G. P. Raja Sekhar, Effect of anisotropic permeability on fluid flow through a channel with symmetric anisotropic porous layers, 59th Indian Society of Theoretical and Applied Mechanics, Alliance University, Bangalore (2014).
13. Bibaswan Dey and G. P. Raja Sekhar, Dynamics of a Charged Soft Porous Particle in an unbounded Mono-disperse Suspension, 59th congress of ISTAM-2014, Alliance University, Bengaluru, India, December 17-20, 2014.
12. Bibaswan Dey and G.P. Raja Sekhar, Effect of axial vibration of boundary in a Brinkman medium on the Mass transfer and wall Shear stress, 11th ASME-ISHMT Heat and Mass transfer conference-2013, IIT Kharagpur, India, December 28-31, 2013.
10. Kamal Ch. Das , Debasis Deb , G. P. Raja Sekhar, Analytical Model for Fully Grouted Rock Bolts with Consideration of Rock Joints Movements, Third Indian Rock Conference: INDOROCK-2011, IIT Roorkee, (2011).
9. Mirela Kohr, Raja Sekhar, G.P., Wolfgang L Wendland, Boundary integral equations for a three-dimensional Stokes-Brinkman cell model 80th Annual Meeting of International Association of Applied Mathematics and Mechanics (GAMM09), Gdansk University of Technology, Poland, (2009).
8. Raja Sekhar, G. P., Jai Prakash, Mirela Kohr, Arbitrary oscillatory Stokes flow past a porous sphere : Faxen's laws International Congress of Theoretical and Applied Mechanics (ICTAM), Adelaide, Australia, (2008).
7. Debasis Deb, G. P. Raja Sekhar, Kamal Ch. Das, Extended Finite Element Method: A Novel Technique for the Analysis of Joints and Fractures, 53rd Congress of ISTAM, Osmania University, India, (2008).
6. Raja Sekhar, G. P., Jai Prakash, Mirela Kohr, Steady and oscillatory analysis of porous catalysts in fluidized beds 79th Annual Meeting of International Association of Applied Mathematics and Mechanics (GAMM08), University of Bremen, Germany (2008).
5. Sano, O., Kaneko, Y. and Raja Sekhar, G. P, Collapse, Growth and Merging of Cavity regions in a granular material due to viscous flow International Congress of Theoretical and Applied Mechanics (ICTAM), Warsaw, Poland (2004).
4. Sano, O. and Raja Sekhar, G. P, Collapse of void region and network formation of water in a granular material due to viscous fluid, Asian Congress of Fluid Mechanics, Isfahan, Iran, (2002).

3. Raja Sekhar, G. P., Sano, O., Idera, R., and Maki, K, Collapse of a Void and Water-way Formation in a Granular Material due to Viscous Flow, STATPHYS 21, Cancun, Mexico, (2001).
2. Raja Sekhar, G. P., and Sano, Osamu, Fundamental Process of the Self-Organization of Waterway Network in Granular Material Workshop on Complex Fluids, Kyoto University, Kyoto, (2000).
1. Raja Sekhar, G. P., and Sano, Osamu, Fundamental Process of the Self-Organization of Waterway Network in Granular Material Workshop on Complex Fluids, Kyoto University, Kyoto, (2000).

Edited Volumes

- 5 **Proceedings of the 57th Congress of ISTAM** (Indian Society for Theoretical and applied Mechanics)
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 (ISBN : 81-7319-597-8)
- 1 **Combinatorial and Computational Mathematics**
Co-author: S Nanda
Narosa Publishing House, New Delhi, 2004 (ISBN : 81-7319-598-6)

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 was developed by me	PG Level	2012, 2014, 2023
MA 51006 Boundary Element Methods MA 61028 Boundary Integral Methods This course was 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, 2023
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, 2022
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