CURRICULUM VITAE

1. Name: Dr. Raghunath Anant Mashelkar

2. Date of Birth: 01.01.1943

3. Nationality Indian

4. Present Position National Research Professor
Chairman, National Innovation Foundation &
President, Global Research Alliance
3rd Floor, Adams Court, Above Bank of Baroda
Baner, Pune-411045

5. Contact Details Mobile: 9960377 577, e-mail :ram@mashelkar.com

6. Positions held

- National Research Professor (2011 -)
- CSIR.Bhatnagar Fellow (2007-2011)
- Director General, Council of Scientific & Industrial Research, New Delhi, INDIA, (1995-2006)
- Director, National Chemical Laboratory, Pune, INDIA (1989-1995)
- Scientist in Director's Grade, National Chemical Laboratory, Pune, INDIA (1986-1989)
- Deputy Director, National Chemical Laboratory, Pune, INDIA (1978-1986)
- Asstt. Director, National Chemical Laboratory, Pune, INDIA (1976-1978)
- Lecturer in Chemical Engineering, University of Salford, UK (1970-1976)
- Leverhume Research Fellow, Department of Chemical Engineering, University of Salford, UK (1969-1970)
- Director General, Indian Council of Agricultural Research, New Delhi (13 Nov. 2000 to 24 Dec., 2000) (Additional Charge).

7. Academic Qualifications: B.Chem. Engg. (1966), Ph.D. (1969) (Univ. of Bombay)

8. Civilian Honours by President of India:

- Padmashri (1991)
- Padmabhushan (2000)
- Padmavibhushan (2014)

9. Election to Prestigious Academies and Scientific Bodies *(India and Abroad)*:

- Corresponding Member of Australian Academy of Sciences (2017)
- Fellow, US National Academy of Inventors (2016)
- Fellow, International Union of Pure & Applied Chemistry (2012)
- Foreign Fellow, American Academy of Arts & Sciences (2011)
- Foreign Fellow, Australian Academy of Technological Sciences and Engineering (ATSE) (2008)
- Fellow, Royal Society of Chemistry, Cambridge, UK (2006)
- Foreign Associate, US National Academy of Sciences, USA (2005)
- Fellow, Indian Association for the Cultivation of Science, Kolkata (2005)
- President, Indian National Science Academy (2005-2007)
- President, Materials Research Society of India (2004-06)
- President, Institution of Chemicals Engineers, UK (2007-08)
- Foreign Associate, National Academy of Engineering, USA (2003)
- Fellow, Royal Society (FRS), London (1998)
- General President, Indian Science Congress (1999-2000)
- Fellow, World Academy of Arts & Science, USA (2000)
- Fellow, The Institute of Physics, London (1998)
- Fellow, Institute of Electronics and Telecommunication Engineers (IETE) (1998)
- Foreign Member, Royal Academy of Engineering, UK (1996)
- Fellow, UK Institute of Chemical Engineering (1996)
- Fellow, The World Academy of Sciences (1994) Fellow, Indian National Science Academy (1984).
- Fellow, Indian Academy of Sciences (1983).
- Fellow, Maharashtra Academy of Sciences (1985).
- Fellow, National Academy of Engineering (1987).
- Fellow, National Academy of Sciences (1989).
- Fellow, Indian Institute of Chemical Engineers (1992)
- President, Physical Sciences, National Academy of Sciences (1991).
- President, Maharashtra Academy of Sciences (1991-94).

  President, Society for Polymer Science in India (1986-92).
- President, Indian Society of Rheology (1986-93).

- Vice-President, Materials Research Society of India (1993-95)
- Vice-President, Indian Academy of Sciences (1995-2000)

10. Honorary Doctorates in Science and Engineering:

- Poornima University, Jaipur (2019)
- Dr. D.Y. Patil University, Mumbai (2018)
- ITM University, Gwalior (2017)
- Monash University (2016)
- Suresh Gyan Vihar University (2016)
- Bharati Vidyapeeth (2015)
- Dr. D.Y. Patil Vidyapeeth (2015)
- Swinburne University, Australia (2015)
- Mahatma Phule Krishi Vidyapeeth , Rahuri (2015)
- Solapur University (2015)
- Amity University, Noida (2011)
- National Institute of Technology, Agartala (2011)
- Symbiosis International University (2010)
- Mahatma Gandhi Kashi Vidyapith, Varanasi (2009)
- University of Goa (2009)
- Lucknow University, Lucknow (2007)
- Deendayal Upadhyay Gorakhpur University, Gorakhpur (2007)
- Sri Venkateswara University, Tirupati (2006) Visva Bharati, Santiniketan (2006) D.Lit. *(Desikottama)*
- Mohanlal Sukhadia University, Udaipur (2006)
- Guru Nanak Dev University, Amritsar (2005)
- Maharishi Dayanand University, Rohtak (2005)
- Govind Ballabh Pant University of Agriculture & Technology, Pantnagar (2004)
- Narendra Deva University of Agriculture & Technology, Faizabad (2004)
- University of Kalyani, Kalyani (WB) (2004)
- M.S. University of Baroda, Varodara (2003)
- University of Allahabad, Allahabad (2002)
- University of Wisconsin, USA (2002)
- Banaras Hindu University, Varanasi (2002)
- Tilak Maharashtra Vidyapeeth, Pune (2002)
- University of London, UK (2001)
- Pretoria University, Pretoria, South Africa (2000)
- Anna University, Chennai (2000)
- Guwahati University, Assam (2000)
- Bundelkhand University, Jhansi (2000)
- University of Delhi, Delhi (1998)
- Indian School of Mines, Dhanbad (1997)
- University of Roorkee, Roorkee (1997)
- University of Kanpur, Kanpur (1995)
- University of Salford, UK (1993)

11. Board of Directors of Companies

- Invictus Oncology Pvt.Ltd. (2014 -)
- Vyome Biosciences Pvt.Ltd.(2011 -) also Chairman
- GenNext Ventures Pvt. Ltd (2010 -) also Chairman
- IKP Centre for Technologies in Public Health (ICTPH) (2009-2015), also Chairman
- Hindustan Unilever Ltd. (2008- 2014)
- KPIT Cummins InfoSystems Ltd. (2008-)
- Piramal Life Sciences Ltd.. (2008-2013).
- Reliance GeneMedix (2008-) also Chairman
- Sakal Papers Ltd. (2008-)
- Thermax Limited (2008-)
- Tata Motors Ltd. (2007-)
- Reliance Industries Ltd. (2007-)
- ICICI Knowledge Park (1999-09)
- TDICI Venture Capital Ltd. (1991-94)

12. Awards:

A. For Scientific Research:

- 3rd FICCI Higher Education Excellence - Lifetime Achievement Award (2016) by FICCI.
- OPPI Lifetime Achievement Award (2016) by Organisation of Pharmaceutical Producers of India (OPPI).
- GFILES Governance Lifetime Achievement Award (2016)
- Asutosh Mookherjee Memorial Award (2005) by Indian Science Congress Association;
- The TWAS medal (2005) by TWAS, the Academy of Sciences for the Developing World;
- Life Time Achievement Award (2004) by Indian Science Congress Association;
- Life Time Achievement Award (2003) by Bundelkhand University for contributions in advancement for chemical sciences;
- Hari Om Ashram Prerit Senior Scientist Award (2002) by Physical Research Laboratory, Ahmedabad;
- Shanti Swarup Bhatnagar Medal (2001) by Indian National Science Academy, New Delhi;
- Shanti Swarup Bhatnagar Award (2001) by Indian Science Congress Association, Calcutta;

- Material Scientist of the Year Award (2000), by Materials Research Society of India;
- Mehendra Lal Sircar Lecture Award in Chemical Sciences (1998) by Indian Association for the Cultivation of Science, Calcutta;
- Kamal Kumari National Award for Science & Technology (1997) by Kamal Kumari Foundation, Jorhat;
- Goyal Prize (1996) by Goyal Foundation, Kurukshetra;
- Raj Kristo Dutt Memorial Award (1995) Indian Science Congress Association;
- GD Birla Award for Scientific Research (1993);
- Professor Santappa Silver Jubilee Award (1983) by Society of Polymer Science, Chennai;
- Shanti Swarup Bhatnagar Prize (1982) for engineering sciences by CSIR, New Delhi;
- Herdillia Award for 'Excellence in Basic Research' (1982) by Indian Institute of Chemical Engineers, Calcutta.

B. For Technology & Industrial Research:

- World Federation of Engineering Organisations (WFEO) Medal of Engineering Excellence (2003) by WEFO, Paris
- A.V. Rama Rao Research Foundation Award (2003) by AVRA Laboratories Pvt. Ltd., Hyderabad;
- RMK Engineering Award for outstanding work in Science & Technology (2003) by Lakshmikanthammal Educational Trust, Tiruvallur, Chennai;
- Bharat Ratna Dr. M. Visvesvaraya Memorial Award (2002) by Engineers Foundation, Kolhapur;
- JEPPIAR Educational Trust Award (2001) by Jeppiar Trust, Chennai;
- H.K. Firodia Award (2000) by H.K. Firodia Foundation, Pune;
- Atur Sangtani Award (1998) by Atur Foundation, Pune;
- Durga Prasad Khaitan Memorial Gold Medal (1996) by Asiatic Society, Calcutta;
- National Research Development Corporation (NRDC) Republic Day Award (1995);
- OP Bhasin award (1991) by Bhasin Foundation, Delhi;
- Pandit Jawaharlal Nehru National Award in Engineering & Technology (1991) by Govt. of Madhya Pradesh;
- Vishwakarma medal (1988) by Indian National Science Academy;
- Federation of Indian Chamber of Commerce and Industry Award (1987) in physical and mathematical sciences;

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KG Naik Gold Medal in research in chemical sciences (1985);
Mohan Dharia Nation Building Award (2014)
Gomant Vibhushan, Highest Civilian Award by Government of Goa (2013)

- Bapu Award by Gandhi National Memorial Society (2013)
- Life Time Contribution in Engineering by Indian National Academy of Engineering (2012)
- Lokmanya Matrubhoomi Award (2011)
- Rajarshi Shahu Puraskar (2017)
-

C. For Leadership:

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- IIFA Ben Gurion Award (2009) for contributions in Science & Technology
- Punyabhushan Award (2008) for contributions in Science & Technology
- Rajiv Gandhi Life Time Achievement Award (2007) by Rajiv Rural Development Foundation, Tirupati.
- Life Time Achievement Award (2007) by Indore Management Association, Indore.
- Life Time Achievement Award (2006) by BioSpectrum;
- Life Time Achievement Award (2006) by Hi-Tech Pune-Maharashtra;
- Life Time achievement Award (2006) by Suryadatta Group of Institutes, Pune
- Baroda Sun Award (2005) by Bank of Baroda, Mumbai
- Lakshmipat Singhania – IIML National Leadership Award (2004) by Indian Institute of Management, Lucknow
- Lal Bahadur Shastri National Award (2002) by Lal Bahadur Shastri Institute of Management for Excellence in Public Administration and Management Sciences.
- IMC Juran Quality Medal (2002) by Indian Merchants Chamber for leadership and continuous involvement as a role model for improvement of quality in CSIR;
- HRD Excellence Award (2002) in the CEO (NonCorporate) Category by National HRD Network, Birla Management Corporation Ltd., Mumbai;
- Golden Jubilee Award (1998) by Bank of India, Mumbai for excellence in R&D management;

- JRD Tata Award for Corporate Leadership (1998) by All India Management Association for exemplary leadership provided to CSIR.

D. For All Round Excellence:

Inaugural BP Lecture, Judge Business School, University of Cambridge (2010)
ETH Presidential Lecture at French Academy of Sciences, (2007) Zurich.

- Star of Asia Award (2005) of Business Week (USA)
- Maharashtra Bhushan Award (2005) by Government of Maharashtra, Mumbai for contributions to science and technology;
- Qimpro Award for Quality Evangelist (2003) by Qimpro Foundation, Mumbai
- Devi Ahilya National Award (2003) by Shri Ahilyotsava Samiti, Indore for contribution towards development in the scientific and industrial fields;
- ASSOCHAM New Millennium Innovation Award (2003) by Associated Chamber of Commerce for excellence in innovation;
- Maharashtra Bhushan Award (2003) by Maharashtra Times, Mumbai for all round excellence;
- Shraddhanand Award (2003) by Brahman Sabha, Mumbai for excellence in research;
- Shiromani Award (2002) for outstanding achievements in the field of science and commitment to national progress and human welfare
- Dadabhai Naoroji Memorial Award (2002) by the Dadabhai Naoroji Memorial Prize Trust, Mumbai for contributions to advancing S&T in India;
- Priyadarshani Global Award (2002) by Priyadarshani Academy, Mumbai for promoting S&T;
- Lifetime Achievement Award (2001) by Chemtech Foundation for all time lifetime achievement ;
- Abhimanshreemurti (Person of Pride) Award (1999) by Chaturang Foundation, Mumbai for being one of the leading National Role Models;
- Shri Guruji Puraskar (1998) Jankalyan Samiti, Pune for protecting India's traditional knowledge;
- Lifetime Achievement Award (1998), Indian Analytical Instruments Association for lifetime achievement;
- UDCT Diamond Award (1994) by Department of Chemical Technology, Mumbai;

- UDCT Outstanding Alumni Medal (1985) as one of the twenty outstanding performers from UDCT in fifty years.

13. Professorships (Honorary & others) etc.:

- Visiting Professor at Harvard University, HST Division (2007-08), Laboratory of Nanomedicine (2009-2013)
  Sir Louis Matheson Distinguished Visiting
  Professor, Monash University, Australia (2007 –)
  Visiting Professor at Salford University, UK (2011)
  Honorary Professor, Banaras Hindu University (2005 - 2007)
- Honorary Professor, Jawaharlal Nehru Centre for Advancement of Scientific Research (1990-)
  GP Kane Professor, University of Bombay (1990).
- Fellow, University Department of Chemical Technology (1992).
- Fellow, University of Salford, UK (1992-93);
- Visiting Professor, University of Delaware, USA (1975-76);
- Visiting Professor, Technical University of Denmark, Lyngby (1982)
- Honorary Visiting Professor, University of Pune (1985-86).
- Visiting Professor, University of Delaware, USA (1988)
- Visiting Fellow, University of Bombay (1985).
- UGC National Lecturer in Engineering and Technology (1985).

14. Chairmanship/Membership of National Level High-Powered Committees/Bodies:

- Chairman, Committee to review the functioning of Central Insecticide Board (CIB) and Registration Committee (RC) DPPQ&S, Faridabad – Ministry of Agriculture & Farmers Welfare (2017).
- Member, National Steering Committee for
  Scientific Validation and Research on Panghgavya (SVAROP) Programme (2017 -)
- Chairman, High Powered Expert Committee to chart out a roadmap for future growth and development of Haffkine Bio-Pharmaceutical Corporation Ltd.
- Member, Board of Access Health International (2017 -)

- Chairman, Formation of Technology Evaluation Committee for Solid & Liquid Waster and Water Supply.
- Chairman, Swachh Bharat Committee on
  Examination of the best technologies concerning sanitation and watter (2014 -)
- Member, Governing Council, Institute of Liver and Biliary Sciences (2014 -)
- Member, Scientific Advisory Council to Prime Minster of India (1988-1990, 2004-2014)
- Member, Scientific Advisory Committee to the Indian Cabinet (1997-1999) Member, Prime Minister's Awards for Excellence in

Public Administration (2012-)

Member, Prime Minister's Knowledge Task Force (2000-2002)

Chairman, National Innovation Foundation (2000-)

Chairman, Reliance Innovation Council (2007-).

Chairman, Thermax Innovation Council (2008-)

- Chairman, Marico Innovation Foundation (2005-)
- Chairman, KPIT Technologies Innovation Council (2013-)
- Sr. Advisor, Tata Capital Innovation Fund (2013-)
- Chancellor, Institute of Chemical Technology (Deemed University, Mumbai (2010-)
- Chancellor, Academy of Scientific & Innovative Research (2013 - 2016)
- Chairman, Research Advisory Council, IITBMonash Research Academy, Mumbai (2014-)
- Chairman, Board of Governors, Indian Institute of Technology, Gandhinagar (2010-2014).
- Chairman, Board of Governors, Indian Institute of Science Education and Research, Kolkata (2010-2014)
- Chairman, Board of Governors, Indian Institute of Science Education and Research, Mohali (2010-2014)
- Chairman, Committee on Reorganisation of Indian Council of Agricultural Research (ICAR), Govt. of India (2005)
- Chairman, Task Force on Recombinant Pharma Sector constituted by the Government of India, Ministry of Environment & Forests, New Delhi (2004)
- Chairman, Expert Committee on 'A Comprehensive Examination of Drug Regulatory Issues, including the problem of Spurious Drugs' Government of India (2003)
- Chairman, National Quality Council of India (20022006)
- Chairman, Scientific Advisory Committee on Hydrocarbons, Ministry of Petroleum & Natural Gas (2002-2006)
- Chairman, National Auto Fuel Policy, Government of India (2001)
- Chairman, Governing Body, National Institute of Pharmaceuticals Education and Research (2001-2005)
- Chairman, Drugs and Pharmaceuticals Research Committee, Government of India (2000)
- Member, Board of Governors of National Council for Applied Economic Research (2001 - 2006)

- Member, Governing Body, Indian Council for Research on International Economic Relations (2001-2006)
- Chairman, High Powered Review Committee to review Regional Engineering Colleges (RECs) (1998)

  Chairman, Inquiry Committee for Maharashtra Gas Cracker Complex Accident, Government of India (1990)

  Member, Technology Development Board (19952002)
- Technical Assessor to one Man Inquiry

  Commission to Inquire into Bhopal Tragedy, Govt. of Madhya Pradesh (1984)

15. International Bodies/Committees:

- Member, Advisory Board to the Global Innovation Index, Geneva, (2013-)
- Member, Michelin Corporate Innovation Board (CIB), France (2013 -)
- Member, National Research Foundation, Singapore (2011-)
- Member, OECD Advisory Group on Innovation for Inclusive Growth (2013 -)
- Vice-Chairman, Knowledge Economy Network (KEN) International Advisory Board, Slovania (2013-)
- Member, Innovation Review Panel of the Grand Challenges Explorations, Bill & Melinda Gates Foundation, Redmond, USA (2012 -)
- Consultant, (Inclusive Innovation), World Bank, Washington (2007 -)
- Member, Global Agenda Council, World Economic Forum, Switzerland (2013 -)
- Member, Development Advisory Committee (IAC), USA/France (2010-2014)
- Member, World Economic Forum's Global Agenda Council on Emerging Technologies (2009-)
- Member, Scientific Advisory Board, VTT, Finland (2007-09)
- Member, I-20 Global Innovation Leaders, San Francisco, USA (2009)
- Member, External Research Advisory Board, Microsoft, USA. (2007-2011) .
- Member, External Research Advisory Board, Microsoft, India (2007-2011).

- Vice Chairman, Commission on Intellectual Property Rights, Innovation and Public Health, WHO, Geneva, (2004)
- Chairman, CSIR (South Africa) International Review Committee (2003)
- One Man Committee to review WIPO's World Wide Academy, Geneva, (2003)
- Member, Research Advisory Committee, Department of Chemistry, Imperial College of Science & Technology, UK (2003)

Member, Consultative Group on Agricultural Research (CGIAR) Working Group on Science Council, World Bank (2002)

Member, EPSRC Review Committee of Chemistry Research in UK Universities (2002) Advisor, Development Gateway's Knowledge Economy, World Bank, USA (2002)

- Member, International Commission on Intellectual Property Rights, UK (2001)
- Member, Review Committee, Chemical Engineering Department, University of Cambridge, UK (2001)
- Member, Board of Trustees, Medicine for Malaria Venture, Geneva (2001)
- Chairman, Innovation in Developing World Committee, Third World Academy of Sciences, Trieste (2000)
- Member, Advisory Board, World Wide Academy (WIPO), Geneva (1999-)
- Member, Review Committee, Commonwealth Science Council, London (1998)
- Chairman, Standing Committee on Information Technology (WIPO), Geneva (1998)
- Member, CSIR (South Africa) International Review Committee (1997)

RESEARCH PUBLICATIONS OF R.A. MASHELKAR

Sr. No.	Title	Author	Reference
1.	Absorption with Reaction in Bubble Columns	M.M. Sharma Pirie J.M.(Ed) R.A. Mashelkar	Inst.Chem. Eng. (London), Symp. Ser.,1968,p.10
2.	Mass Transfer in Plate Columns	M.M. Sharma R.A. Mashelkar	Brit.Chem.Eng., 1969, **1** ,70
3.	Mass Transfer in Bubble and Packed Bubble Columns	R.A. Mashelkar M.M. Sharma	Trans.Instn.Chem. Engrs.,1970, **48**,T162
4.	Bubble Columns	R.A. Mashelkar	Brit.Chem.Eng., 1970, **15**, 1297
5.	Extrapolation Procedures for Zero Shear Viscosity with a Falling Sphere Viscometer	V. Subbaraman R.A. Mashelkar J. Ulbrecht	Rheol.Acta, 1971,**10**, 429
6.	Mixing Times in Newtonian and Non-Newtonian Fluids	D.E. Ford R.A. Mashelkar J. Ulbrecht	Process Techn. Int., 1972, **17**, 803
7.	Determination of Material Parameters of Viscoelastic Fluids by Rotational Non-Viscometric Flows	R.A. Mashelkar D.D. Kale J.V. Kelkar J. Ulbrecht	Chem.Eng.Sci., 1972, **27**, 973
8.	On the Rotational Visco-elastic Flows Around Simple Bodies and Agitators	J.V. Kelkar R.A. Mashelkar J. Ulbrecht	Trans.Instn.Chem. Engrs., 1972, **50**, 343
9.	Drag Reduction in Dilute Polymer Solutions	J.V. Kelkar R.A. Mashelkar	J.Appl.Polym.Sci., 1972, **16**, 3047
10.	Gas Absorption in Falling Non-Newtonian Films	V.V. Chavan R.A. Mashelkar	Chem.Eng. J., 1972, **4**, 223
11.	On the Scale-up Method for Power Consumption in Creeping Flow Regime	J.V. Kelkar R.A. Mashelkar	Chem.Eng.Sci., 1973, 28, 664
12.	Drag Reduction in Rotational Visco-elastic Boundary Layer Flows	D.D. Kale R.A. Mashelkar J. Ulbrecht	Nature 1973, **242**, 29
13.	Drag Reduction in External Rotational Flows	R.A. Mashelkar	AIChE J., 1973,**19**, 382
14.	A Rotating Sphere Viscometer	J.V. Kelkar R.A. Mashelkar	J. Appl. Poly. Sci. 1973,**17**, 3069
15.	Solid Dissolution in Falling Films of Pseudoplastic Fluids	R.A. Mashelkar V.V. Chavan	J. Chem.Eng., Japan, 1973,**5**, 160

16. Friction Factors for a Tube Rotating around its own Axis — R.A. Mashelkar, G.V. Devarajan — Can.J.Chem.Eng., 1973, **51**, 390

17. Applicability of Axial Dispersion Model for Non-Newtonian Laminar Flow Tubular Reactors — R.A. Mashelkar — Can.J.Chem.Eng., 1973, **51**, 613

18. Solution of the Problem of Gas Absorption in Falling Films of Non-Newtonian Fluids by Orthogonal Collocation Technique — R.A. Mashelkar, V.V. Chavan, N.G. Karanth — Chem.Eng.J., 1973, **6**, 75

19. Interpretation of Normal Stress Differences in Polymer Solutions and Melts — M. Soylu, R.A. Mashelkar, J. Ulbrecht — Rheol.Acta, 1974, **13**, 216

20. Mass Transport in Visco-elastic Boundary Layer Flows around a Rotating Disc: Significance in Diffusion Coefficient Measurement — R.A. Mashelkar — Int.J.Heat and Mass Transfer, 1974, **17**, 367

21. High Speed Agitation of Non-Newtonian Fluids: Influence of Elasticity and Fluid Inertia — D.D. Kale, R.A. Mashelkar, J. Ulbrecht — Chemie Ing. Tech., 1974, **46**, 69

22. Diffusion in Flowing Films of Dilute Polymeric Solutions — R.A. Mashelkar, M. Soylu — Chem.Eng.Sci., 1974, **29**, 1089

23. Hydrodynamic Entrance Region Flow of Pseudo-plastic Fluids: A Simplified Theory — R.A. Mashelkar — Proc.Instn. Mech.Engrs. 1974, **188**, 683

24. Viscoelastic Laminar Boundary Layer Flow Around a Rotating Disc — D.D. Kale, R.A. Mashelkar, J. Ulbrecht — Rheol.Acta., 1975, **14**, 631

25. Convective Diffusion from a Non-Uniformly Distributed Source in Flowing Blood — R.A. Mashelkar, C.V. Venkatasubramanian — Appl.Sci.Res., 975, **30**, 321

26. Rotational Flows of Non-Newtonian Fluids (1): Torque Suppression with Agitators — R.A. Mashelkar, D.D. Kale, J. Ulbrecht — Trans.Instn. Chem.Engrs., 1975, **53**, 143

27. Rotational Flows of Non-Newtonian Fluids (2): Torque Suppression with Agitators — R.A. Mashelkar, D.D. Kale, J. Ulbrecht — Trans.Instn. Chem. Engrs. 1975, **53**, 150

28. Axial Dispersion Model Calculations for Gas Absorption with Surface Resistance — R.A. Mashelkar, P.A. Ramachandran — Chem.Eng. J., 1975, **2**, 87

29. Axial Dispersion Model Analysis of Homogeneous-Heterogeneous Reactions in a Tubular Reactor — P.A. Ramachandran, R.A. Mashelkar — Letters in Heat and Mass Transfer, 1975, **2**, 213

30. A New Model for Hollow Fibre Enzyme Reactor — R A. Mashelkar, P.A. Ramachandran — J. Appl.Chem. Bio-Tech., 1975, **25**, 867

31. Longitudinal Dispersion in Bubble Columns — R.A. Mashelkar, P.A. Ramachandran — Trans.Instn. Chem.Engrs., 1975, **53**, 274

32. Homogeneous Reactions in Turbulent Flows — P.A. Ramachandran, R.A. Mashelkar — Chem.Eng.J., 1976, 11, 73

33. Comments on the Strength of Polymeric Composites Containing Spherical Fillers — L. Nicolais, R.A. Mashelkar — J.Appl.Polym. Sci., 1976,**20**, 561

34. Secondary Flows of Non-Newtonian Fluids (1): Laminar Boundary Layer Flow of a Generalized Newtonian Fluid in a Coiled Tube — R.A. Mashelkar, G.V. Devarajan — Trans.Instn. Chem.Engrs., 1976, **54**, 100

35. Secondary Flows of Non-Newtonian Fluids (2): Frictional Losses in Laminar Flow of Visco elastic Fluids Through Coiled Tube — R.A. Mashelkar, G.V. Devarajan — Trans.Instn. Chem.Engrs., 1976, **54**, 108

36. Torque Suppression in Mechanically Agitated Multiphase Liquid Systems — A. Quraishi, R.A. Mashelkar, J. Ulbrecht — J.Non-Newtonian Fluid, Mech., 1976, **1**, 223

37. Flow of Inelastic and Visco-elastic Fluids Past a Sphere (1): Drag Co- efficient in Creeping and Boundary Layer Flows — A. Acharya, R A. Mashelkar, J. Ulbrecht — Rheol.Acta., 1976, **15**, 454

38. Flow of Inelastic and Visco-elastic Fluids Past a Sphere (2): Anomalous Separation in the Viscoelastic Fluid Flow — A. Acharya, R.A. Mashelkar, J. Ulbrecht — Rheol.Acta., 1976, **15**, 454

39. Gas-Liquid Contactors in Non-Newtonian Technology — R.A. Mashelkar — Chem.End. Develop., 1976, **10** (9),17

40. Torque Suppression of Reducing Additives — A. Quraishi, R.A. Mashelkar, J. Ulbrecht — Klason,C.& Kubat, J.(Ed.), Proc. 7th Internat. Congr. Rheology, Gothenburg 1976 p. 582

41. Heat and Mass Transfer in Non-Newtonian Fluids — G. Astarita, R.A. Mashelkar — The Chem.Engr., (London), 1977,100

42. Secondary Flows of Non-Newtonian Fluids (3): Turbulent Flow of Purely Viscous Non-Newtonian Fluids in Coiled Tubes — R.A. Mashelkar, G.V. Devarajan — Trans.Instn. Chem.Engrs., 1977, **55**, 29

43. Prediction of Slope Discontinuity in Stress- Strain Behaviour of Polymeric Composites with Spherical Inclusions — L. Nicolais, R.A. Mashelkar — Int.J.Polym. Comp., 1977, **5**, 317

44. Influence of Drag Reducing Additives on Mixing and Dispersing in Agitated Vessels — A. Quraishi, R.A. Mashelkar, J. Ulbrecht — AIChE J., 1977, **23**, 487

45. Mechanics of Bubble Motion and Deformation in Non-Newtonian Media — A. Acharya, R.A. Mashelkar, J. Ulbrecht — Chem.Eng.Sci., 1977, **32**, 863

46. An Approximate Theoretical Analysis and Experimental Verification of Turbulent Entrance Region Flow of Drag Reducing Fluids — S.N. Shintre, R.A. Mashelkar, J. Ulbrecht — Rheol.Acta, 1977, **16**, 490

47. On Motion of Liquid Drops in Rheologically Complex Fluids — A. Acharya, R.A. Mashelkar, J. Ulbrecht — Can. J. Chem. Eng., 1978, **56**, 19

48. Convective Diffusion from a Non-Uniformity Distributed Source in Non-Newtonian Fluids: A Theoretical Investigation and Experimental Confirmation — C.V. Venkata-subramanian, R.A. Mashelkar — Chem. Eng. Commun., 1978, **2**, 233

49. Turbulent Free Convection Heat Transfer from a Flat Vertical Plate to a Power Law Fluid — A.V. Shenoy, R.A. Mashelkar — AIChE J., 1978 **24**, 344

50. Laminar Natural Convection Heat Transfer to a Viscoelastic Fluid — A.V. Shenoy, R.A. Mashelkar — Chem.Eng.Sci., 1978, **33**, 769

51. Bubble Formation in Non-Newtonian Fluids — A. Acharya, R.A. Mashelkar, J. Ulbrecht — Ind.Eng.Chem.Fundam., 1978, **17**, 230

52. Bubble Motion and Mass Transfer in Non-Newtonian Fluids: Single Bubble in Power Law and Bingham Fluids — S. Bhavaraju, R.A. Mashelkar, H. Blanch — AIChE J., 1978, **24**, 1063

53. Bubble Motion and Mass Transfer in Non-Newtonian Fluids: Swarm of Bubbles in Power Law Fluids — S. Bhavaraju, R.A. Mashelkar, H. Blanch — AIChE J., 1978, **24**, 1070

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