

Dr Roddam Narasimha is Professor at the Engineering Mechanics Unit at the Jawaharlal Nehru Centre for Advanced Scientific Research. He concurrently holds the Pratt & Whitney chair in Science and Engineering at the Central University of Hyderabad, Hyderabad.

Dr Narasimha was educated at the University College of Engineering and at the Indian Institute of Science in Bangalore, and obtained his PhD at the California Institute of Technology, USA, in 1961. He joined the Indian Institute of Science in 1962 and was associated with the Department of Aerospace Engineering in various capacities from that date till 1999. In 1982 he founded the Centre for Atmospheric Sciences (now Centre for Atmospheric and Oceanic Sciences), which he headed till 1989. During 1984 to 1993 he was Director of the National Aerospace Laboratories. For many years beginning 1983 he held a visiting position at Caltech, as Clark B Millikan Professor or Sherman Fairchild Distinguished Scholar. During 1989-90 he was Jawaharlal Nehru Professor at Cambridge University in England. He has also held visiting positions at NASA Langley, Strathclyde, University of Brussels, Adelaide University etc. From 1990 to 1994 he was INSA Golden Jubilee Research Professor, and from 1994 to 1999 the ISRO K R Ramanathan Distinguished Professor at IISc/JNCASR. He was Director of the National Institute of Advanced Studies, Bangalore during 1997-2004. ‘

Prof Narasimha's research has been chiefly concerned with aerospace fluid dynamics and certain related problems in atmospheric dynamics. He has made extensive studies of transitions between laminar and turbulent flow (going in either direction), the structure of shock waves, various characteristics of fully developed turbulent flow (e.g. their memory, the bursting phenomenon in boundary layers), the fluid dynamics of clouds, near-surface temperature distributions and eddy fluxes in atmospheric boundary layers. He has been closely associated with aerospace technology development in India at both technical and policy-making levels. During 1977-79 he was Chief Project Coordinator in Hindustan Aeronautics Limited.

As Director of NAL he initiated and oversaw several major technology programmes, including parallel computing and computational fluid dynamics, advanced composite structures, modern flight control systems and the design and construction of light fibre-glass aircraft. He also initiated and promoted the first civil transport aircraft programme in the country, through a 14-passenger capacity multi-role aircraft. He served on the Board of Directors of Hindustan Aeronautics Limited for several years.

As a member of Prime Minister Rajiv Gandhi's Scientific Advisory Council he was instrumental in establishing a major parallel computing initiative in the country. He was President of the Indian Academy of Sciences during 1992-94 and spear-headed a new programme on university education in science, leading to the establishment of the journal *Resonance* and other Academy programmes involving teachers and students. He has served several terms on the National Security Advisory Board. As member of Prime Minister Manmohan Singh's Scientific Advisory Committee he played a key role in the establishment of the Earth Commission. He has been a member of the Space Commission since 1989, and co-chairs the Joint Scientific Working Group for the Indo-French atmospheric research satellite *Megha-Tropiques*.

As Director of NIAS Prof Narasimha initiated a series of major dialogues on international security issues with the US National Academy of Sciences and other bodies, and pursued his interests in the history of science and technology.

He has been widely honoured for his research work as well as his scientific leadership. He is a Fellow of the Royal Society, and a Foreign Associate of both the US National Academy of Engineering and the US National Academy of Sciences. He is also an Honorary Member of the American Academy of Arts and Sciences, and a Fellow of the American Institute of Aeronautics and Astronautics. In India his distinctions include the Bhatnagar Prize, the Gujarmal Modi Award and the Padma Bhushan, among many others. He is a Fellow of all the national academies of science and engineering, and an Honorary Fellow of the Aeronautical Society of India. He is a Distinguished Alumnus of both Caltech and IISc. He has delivered numerous invited lectures at various international conferences. In 2000 he won the Fluid Dynamics Award of the American Institute of Aeronautics and Astronautics.

In 2008 he was awarded the Trieste Science Prize, for his “distinctive and original contributions to fluid dynamics, with applications to aerospace technology and atmospheric dynamics”.

He is the author of more than 200 research publications and fifteen books.

Education

- B.E in Mechanical Engineering (I Class), University of Mysore 1953
- Diploma in Aeronautical Engineering (I Rank), Indian Institute of Science 1955
- Associateship of the Indian Institute of Science 1957 (Thesis: **A study of transition from laminar to turbulent flow in the boundary layer on a flat plate**, Advisor: Prof S Dhawan)
- Ph.D. in Aeronautics and Physics, California Institute of Technology 1961 (Thesis: *Some flow problems in rarefied gas dynamics*, Advisor: Prof H W Liepmann)

Honours

1. Sharadamba Prize, University of Mysore 1953
2. The Minta Martin National Student Award, Institute of Aerospace Sciences (USA) 1960
3. Member, Sigma Xi 1962
4. Burmah-Shell Award, Aeronautical Society of India 1970
5. Fellow, Indian Academy of Sciences 1972
6. Bhatnagar Prize in Engineering Sciences, Council of Scientific and Industrial Research 1976
7. Homi Bhabha Award for Research in Applied Sciences, University Grants Commission 1976
8. Fellow, Indian National Science Academy 1979
9. Sherman Fairchild Distinguished Scholar, California Institute of Technology 1982-83, 1986
10. Member, New York Academy of Sciences 1983
11. Honorary Fellow, Aeronautical Society of India 1985
12. Clark B Millikan Visiting Professor, California Institute of Technology 1985
13. Bhatnagar Medal, Indian National Science Academy 1985
14. Kannada Rajyothsava Award, Karnataka Government 1986
15. Distinguished Alumnus, California Institute of Technology 1986
16. Padmabhushan Award, Government of India 1987
17. Fellow, Indian National Academy of Engineering 1987
18. Distinguished Alumnus, Indian Institute of Science 1988
19. Elected Foreign Associate, National Academy of Engineering, USA 1989
20. Fellow, Third World Academy of Sciences 1989
21. Jawaharlal Nehru Visiting Professor, University of Cambridge, UK 1989-90
22. Gujar Mal Modi Award for Science 1990
23. Fellow of the Royal Society, London, UK 1992
24. Fellow, American Institute of Astronautics & Aeronautics 1993
25. Abhinandana, Akhila Bharata Madhva Mahamandala, February 1994
26. L.S.G. Kovasznay Distinguished Lecturer, University of Houston, Texas, April 1994
27. D.Sc. (h.c.) Gulbarga University 1994
28. Inaugural and Valedictory Speaker at the Minnowbrook Conferences I-V, Minnowbrook, NY, USA, 1994-2006
29. Distinguished Engineer Award, Engineering Staff College of India (Institution of Engineers), 15 September 1995
30. D.Engg. (h.c.) Roorkee University (now IIT Roorkee) 1996
31. National Design Award, Institution of Engineers 1996

32. Srinivasa Ramanujan Medal, Indian Science Congress 1998
33. Foreign Honorary Member, American Academy of Arts and Sciences, 1999
34. Fluid Dynamics Award, American Institute of Aeronautics and Astronautics 2000
35. Foreign Associate, National Academy of Sciences, USA 2000
36. Fellow, The World Innovation Foundation, UK 2000
37. Doctor of Science (h.c.) Banaras Hindu University, 2002
38. Sixth Yunchuan Aisinjiuro-Soo Distinguished Lecturer, University of Illinois (Urbana-Champaign), 2002
39. Aryabhata Award, Astronautical Society of India, Ahmedabad, India 2004 (awarded on 5th August 2006)
40. Fellow, Indian Astronautical Society
41. Fellow, Indian Geophysical Union
42. Life Time Contribution Award in Engineering 2003, Indian National Academy of Engineering
43. Pratt & Whitney Endowed Chair in Science and Engineering, University of Hyderabad
44. Honorary Fellow, Indian Institute of Science 2008
45. Trieste Science Prize 2008
46. Desikothama, Visva Bharati University 2008
47. PhD (h.c) from Visweswaraiya Technical University, Belgaum, Dec 2008
48. Zakir Hussain Memorial Award of the Indian Society of Industrial & Applied Mathematics, Agra, 14 Jan 2009

Professional Affiliations

1. Co-Chairman, Joint Scientific Working Group, Megha Tropiques (ISRO-CNES) (1999-)
2. President, Indian Academy of Sciences (1992-94); Secretary and Member of the Council (1979-85); Vice President (1986-91)
3. Chairman, Experts Group on Failure of ASLV, ISRO (1988-89)
4. Chairman, Asian Fluid Mechanics Committee (1992-2002), Member 1984-
5. Member, Working Committee for *Current Science*
6. Chairman, Editorial Board, Sadhana (Proc. Engg. Sci.), Indian Academy of Sciences (1978-91), Consulting Editor 1996-2007
7. Member, Editorial Boards of: Experiments in Fluids (Springer), Fluid Dynamics Research (North Holland), Journal of Aerospace Engineering (IMechE,UK) at various times; currently Computational and Theoretical Fluid Dynamics (Springer)
8. Member, General Assembly of the International Union of Theoretical and Applied Mechanics (IUTAM) (1988-2004) and of the Fluid Mechanics Symposia Panel (1988-2000)
9. Member, Bureau of the International Union of Theoretical and Applied Mechanics (2000-2004)
10. Member of the Council, Indian National Science Academy (1982-86)
11. Chairman (1982-85), Member (1985-88), Indian National Committee for Theoretical and Applied Mechanics
12. Chairman, Indian National Committee for IGBP (1997-2000), Member (2000)
13. Member, Indian Meteorological Society
14. Founder President, Indian Society for Mathematical Modelling and Computer Simulation
15. Chairman, Editorial Board, Indian Journal of History of Science 2004-2008
16. Chairman, Advisory Board, CSIR (1999-2002)

Positions Held

In India

- Director, National Institute of Advanced Studies 1997-2004
- ISRO K R Ramanathan Professor, Jawaharlal Nehru Centre for Advanced Scientific Research 1995-2000
- Honorary Professor, Department of Aerospace Engineering 1993-1998, Centre for Atmospheric Sciences, Indian Institute of Science 1993-
- Indian National Science Academy Golden Jubilee Professor 1990-1994
- Professor and Chairman, Engineering Mechanics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research 1989-2008
- Director, National Aerospace Laboratories 1984-1993
- Convenor, Centre for Atmospheric Sciences, Indian Institute of Science 1982-1989
- Chairman, Department of Aerospace Engineering, Indian Institute of Science 1983-1984
- Dean, Engineering Faculty, Indian Institute of Science 1980-1982
- Chief Project Coordinator, Hindustan Aeronautics Limited 1977-1979
- Professor, Indian Institute of Science 1970-1993
- Associate Professor, Indian Institute of Science 1967-1970
- Assistant Professor, Indian Institute of Science 1962-1967
- National Institute of Science Junior Fellow at Indian Institute of Science 1955-1957

Abroad

- Jawaharlal Nehru Professor, Cambridge University, UK 1989-1990
- Clark B Millikan Visiting Professor, California Institute of Technology (Caltech) USA (2 months every year) 1985-1989
- Sherman Fairchild Distinguished Scholar, Caltech, USA 1982-1983, 1986
- Leverhulme Fellow, University of Adelaide, Australia, Summer 1975
- Senior Visiting Fellow, Department of Mathematics, University of Strathclyde, Glasgow, UK 1971-1972
- Visiting Scientist, Universite Libre de Bruxelles, Brussels, Summer 1970
- Visiting Senior Research Fellow, Caltech, USA, Summer 1963, 1964, 1966
- Research Fellow, Caltech, USA 1961-1962
- Research/Teaching Assistant, Caltech, USA 1957-1961

Consultancy

- Jet Propulsion Laboratory, Caltech, USA 1961-1962
- H Plesset Associates, Inc., Los Angeles, USA 1961-1963
- National Aeronautical Laboratory, Bangalore 1969-1971
- Space Science and Technology Centre, Trivandrum 1969
- Institute of Computer Applications in Science & Engineering (ICASE), NASA (USA) 1990-1993
- Member of various design review boards for Vikarm Sarabhai Space Centre, Trivandrum
- Zeus Numerix

Advisory Positions

- Member, Earth Commission, 2007-
- Scientific Advisory Council to Prime Minister Manmohan Singh 2005-
- Member, Indo-French Forum 2005-2007
- Member, National Security Advisory Board 1998-2000, 2005-2007
- Member, Indira Gandhi National Council for Arts 2004-
- Member, Council for Jawaharlal Nehru Planetarium 1995-2000
- Indian National Commission for History of Science 1997-
- Member, Consultative Group of Eminent Senior Scientists, Government of India 2000-2004
- Member, Space Commission 1989-
- Member, Group on Telecommunications 1989-
- Member, Scientific Advisory Committee to the Cabinet 1997-1999
- Member, Defence R&D Council 1995-97
- Member, Technology Development Board 1995-97
- Member, Governing Body of CSIR, 1998-2001
- Chairman, Programme Advisory Committee on Atmospheric Sciences, Department of Science & Technology 1995-1997
- Chairman, Engineering Sciences Research Committee, Council of Scientific & Industrial Research 1995-1998
- Chairman, Research Council, Indian National Scientific Documentation Centre 1995-1997
- Chairman, National Steering Committee for Rajiv Gandhi National Institute of Computer and Allied Sciences 1995
- Member, Science and Engineering Research Council (SERC), Department of Science & Technology 1991-1997
- Member, Technology Information, Forecasting and Assessment Council 1987-1997
- Member, Science Advisory Council to Prime Minister Rajiv Gandhi, 1986-1989
- Member, Joint Council of Integrated Long Term Programme of Co-operation in Science and Technology between India and the Russian Federation
- Member, Board of Directors, Hindustan Aeronautics Limited 1985-1998
- Member, Society and Governing Body, Aeronautical Development Agency 1983-1993
- Executive Delegate for India, Commonwealth Advisory Aeronautical Research Council 1983-1993
- Member, Aeronautics Research and Development Board, Government of India 1978-1993