Curriculum Vitae of Katepalli R. Sreenivasan

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Academic Degrees B.E. (Mech. Engg.), Bangalore University, 1968 (first rank, with Sir M. Visvesvaraya Memorial Prize, Indumati Lalbai Memorial Gold Medal, and Institution of Engineers Prize and Honorary Graduate Membership); M.E. (Aero. Engg.), Indian Institute of Science, 1970 (J. R. D. Tata Fellowship, first rank); Ph.D. (Aero. Engg.), Indian Institute of Science, 1975 (P. S. Narayana Gold Medal for the best Ph.D. thesis in Mechanical Sciences); M.A. (Privatim), Yale University, 1985

Employment history Post-doctoral Fellow, Universities of Sydney and Newcastle, Australia, 1975-77; Research Associate and Lecturer, Johns Hopkins U, Baltimore, 1977-79; at Yale U: Assistant Professor, Department of Engineering and Applied Science, 1979-82; Associate Professor, Department of Mechanical Engineering, 1982-85; Professor, Department of Mechanical Engineering, 1985; Harold W. Cheel Professor of Mechanical Engineering, since 1988; Andrew W. Mellon Professor, 1991-1996; Professor of Physics, since 1989; Professor of Applied Physics, since 1993; Professor of Mathematics, since 2001; member, Center for Computational Ecology, since 1995; Chairman, Mechanical Engineering Department, 1987-1992; acting Chairman, Council of Engineering (equivalent, in a previous form, to the Faculty of Engineering, consisting of the departments of Applied Physics, Chemical Engineering, Electrical Engineering, and Mechanical Engineering), 1989; Director, Institute for Physical Science and Technology, and Distinguished University Professor, Professor of Physics, and Glenn L. Martin Professor of Engineering, University of Maryland (since 2002).

Visiting Positions Visiting Scientist, Center for Atmospheric and Oceanic Sciences, Indian Institute of Science, summers of 1981, 1982 and 1984; Visiting Scientist, DFVLR, Goettingen, Germany, 1983; Visiting Professor of Aeronautics, California Institute of Technology, Spring 1985; Visiting Professor of Physics, Rockefeller U, Spring 1988; Visiting Professor of Fluid Mechanics, Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore, Fall 1992; Member, School of Mathematics, Institute for Advanced Study, Princeton, 1995-96; Rothschild Distinguished Visiting Professor, Newton Institute, Cambridge University, England,

1999 Spring; Professor Satish Dhawan Distinguished Professor of Aerospace Engineering, Indian Institute of Science, summer 2001; Distinguished Faculty Fellow, Jawaharlal Nehru Center for Advanced Scientific Research, 2001-2004; Sir C.V. Raman Distinguished Professor, Indian Academy of Sciences, summer 2002

Professional Society Membership American Association for Advancement of Science; American Institute of Aeronautics and Astronautics; American Mathematical Society; American Physical Society; American Society of Mechanical Engineers; Sigma Xi.

Research interests and publications Primary expertise: fluid mechanics and turbulence. Other current interests: complex fluids, nonlinear dynamics, nonequilibrium phenomena, cryogenic helium, atmospheric phenomena. About 150 journal publications and book articles relating to these topics, and also on sonic booms, nucleation of droplets in condensation, chaos, fractals, cosmology, and so forth.

Invited lectures Delivered numerous plenary and principal invited lectures in international meetings and workshops on fluid dynamics, aeronautics, condensed matter physics, nonlinear dynamics, applied mathematics, fractals, etc; many invited seminars in Universities and in Government and Industrial Research Laboratories all over the world. Among them: Emerging Scholar Lecture, University of Notre Dame, 1986; the first Stanley Corrsin Memorial Lecture, Johns Hopkins University, 1987; Phillips Lecture, Haverford College, 1988; Sabita Choudhury Memorial Lecture, Indian Institute of Science, 1992; Distinguished Lecturer, University of Illinois, Urbana-Champaign, 1995; P.-Y. Zhou memorial plenary lecture at the seventh Asian Congress of Fluid Mechanics, Madras, 1997; Sadowsky Lecture in Applied Mechanics, RPI, 1998; Distinguished Lecturer, University of Maryland, College Park, 1998; Carl Gunnard Johnson Lecturer, Worcester Polytechnic Institute, 1998; Distinguished Lecturer in Fluid Mechanics, Pennsylvania State University, February 2001; Shih-I Pai Lecturer, University of Maryland, March 2001

Other Organized scientific workshops, conferences and meetings such as: Third World-Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Developments in Fluid Dynamics and Aerospace Engineering, Turbulence for Physicists, Ultra-High Reynolds Number Turbulent Flows Using Cryogenic Helium, International Meeting on Turbulence, Program on Hydrodynamic Turbulence at the Institute for Theoretical Physics, UC Santa Barbara; organized various invited sessions and discussion sections in meetings such as IUTAM, SIAM, APS, ASME, AIAA, etc.

Participated in collaborative atmospheric and oceanic measurement expeditions in Australia, as well as in field experiments on sonic booms in India; several other atmospheric

experiments such as collaborative experiments at Dugway Proving Grounds.

Short seminar courses in summer schools on chaos, multifractals, wavelets, drag reduction, modeling problems in biology, etc.

Awards and Honors Humboldt Fellow, 1983; Fellow, American Physical Society, 1985; Member, Connecticut Academy of Science and Engineering, 1988; Guggenheim Fellow, 1989; Society of Scholars, Johns Hopkins University, 1991; Distinguished Alumnus Award, Aerospace Department, Indian Institute of Science, 1992; Fellow, American Society of Mechanical Engineers, 1993; Associate Fellow, AIAA, 1993; Otto Laporte Award, American Physical Society, 1995; Distinguished Scholar Award, American Chapter of the Indian Physics Association, 1996; Fellow, American Academy of Arts and Science, 1997; Fellow, American Association for the Advancement of Science, 1998; Member, National Academy of Engineering, 1999; Foreign Fellow, Third World Academy of Sciences, Trieste, Italy, 1999; Member, Connecticut Academy of Arts and Science, 1999; Ulam Scholar, Los Alamos National Laboratory (2000, deferred); Professor B. D. Tilak Distinguished Fellow, Department of Chemical Technology, Mumbai University, 2001

Editorial, Journals Associate Editor, *ASME Journal of Applied Mechanics*, 1984-1990; Editorial Board Member, *Proceedings of the Indian Academy of Science, series C (Sadhana)*, 1988-1991; Editorial Board Member, *American Scientist*, 1990; Member, Advisory Board, Springer Book Series on *Interdisciplinary Applied Mathematics*, 1990-2000; Editorial Board Member, *Journal of Nonlinear Science*, since 1991; Divisional Associate Editor, *Physical Review Letters*, 1991-1995; Editor, *Journal of Theoretical and Computational Fluid Dynamics*, 1992-1995; Associate Editor, *Physical Review E*, 1994-1997; Associate Editor, *Physics of Fluids*, 1995-2000; Editorial Board Member, *Physical Review E*, since 1997; Editorial Board Member, Applied Mathematics Series, Springer, since 2000; Editorial Board member, Applied Mathematics and Mechanics Series, Elsevier, since 2000; Associate Editor (in charge of fast-track papers), J. Fluid Mech., since 2000.

Editorial, Books Co-editor of: *Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*, volumes 1 and 2, Elsevier, 1993 (conference proceedings); *Developments in Fluid Dynamics and Aerospace Engineering*, Interline, 1995 (conference proceedings); two volumes of *Pramana: Journal of Physics,* on *Nonlinearity and Chaos in the Physical Sciences*, Indian Academy of Science, 1997; *Flow at Ultra-High Reynolds and Rayleigh Numbers: A Status Report*, Springer, 1998

Recent service activities at Yale Yale College Faculty Review Committee, 1993; member, Advisory and Tenured Appointments Committee for Physical Sciences and Engineering,

1993 and 1996-2000; Faculty Development Committee, co-chair, 1993, member, 1994-1996; factfinder, Yale College Executive Committee, 1994-95; Silliman Lecture Committee, since 1994 (chairman 1997); Applied Mathematics Committee, 1993-1996 (chairman 1996); Member, Executive Committee, Cowles Foundation for Economics Research, 1998; Geophysics search committee, Department of Geology and Geophysics, 1998; Chairman, Committee for Assistant Dean for Yale College and Director of Asian American Cultural Center, 1999; Member, Search Committee for Dean of Engineering, 1999; Member, Yale Health Plan Advisory Committee, since 2000, etc

Recent service activities elsewhere Member, NSB Panel on Nonlinear Science, 1993; member, External Advisory Committee for the Department of Mechanical Engineering, Johns Hopkins University, since 1994, chairman since 2000; member, Committee of Visitors, National Science Foundation (Fluid Dynamics and Hydraulics), 1995; member, NRC Committee on Condensed Matter and Materials Physics, Board on Physics and Astronomy, 1997-1999; member, Nominating Committee, Conn. Acad. Sci. and Engg., 1997-2000; member, Mechanical Engineering Peer Committee, National Academy of Engineering, since 2001 (vice-chair and Chairman of the Membership Search Committee, 2001-2002); member, Committee of Human Rights, National Academy of Sciences, since 2001; member, Biomass Task Force, Connecticut Academy of Science and Engineering, 2001 (resigned as of Dec 31, 2001);

Representative, Division of Fluid Dynamics (DFD) of the American Physical Society (APS), for the Committee on the International Freedom of Scientists, 1981-1987; member, Executive Committee of DFD, 1986-1997 (chairman 1990); Frenkiel Award Committee, DFD, member 1989, Chairman 1999; member, Fluid Dynamics Prize Committee, APS, 1991; member, Publications Committee, DFD, 1992-1994; member, Otto Laporte Award Committee, APS, 1996; founder-chair, Topical Group in Statistical and Nonlinear Physics, APS, 1996 and 1997; Onsager Prize Committee, APS, member 1997-2000 (chair 1997); member, Fluids Engineering Division of the American Society of Mechanical Engineers (ASME), 1988-1991; member, New Haven Chapter of ASME, 1998; member, Publications Oversight Committee, American Physical Society, since 1999; member, Search Committee for Editor of Physical Review E, etc

Miscellaneous Mentioned in "American Men and Women of Science", "Who is Who in the East," "Who is Who in the World", "Who is Who in America", etc.

Ph.D. students, the titles of their theses and last known positions

1. P.J. Strykowski: "The control of absolutely and convectively unstable flows", 1985. Professor of Mechanical Engineering, University of Minnesota, MN

2. T.B. Lynn: "Manipulation of the structure of a turbulent boundary layer", 1987. Vice President, Dexsil Corporation, CT

3. S. Raghu: "The control of combustion and acoustic coupled fluid dynamic instabilities", 1987. Senior Research Engineer, Bowles Fluidics, MD

4. M.S. Garelick: "Numerical analysis of manipulated laminar flows", 1988. Professor of Engineering, U.S. Merchant Marine Academy, NY

5. R. Ramshankar: "The dynamics of countercurrent mixing layers", 1988. Director, Marketing and Strategic Analysis, Cummins Inc.

6. C. Meneveau: "The multifractal nature of turbulence", 1989. Professor of Mechanical Engineering, Johns Hopkins University, MD

7. A.B. Chhabra: "The thermodynamic formalism of multifractals and its applications to chaotic dynamical systems and turbulence", 1989. Vice President, Derivatives Research, Chase Manhattan Bank, NY (formally registered with R.V. Jensen)

8. D.J. Olinger: "Universality in the transition to chaos in open fluid flows", 1990. Associate Professor of Mechanical Engineering, Worcester Polytechnic Institute, MA

9. M.S. Fan: "Features of vorticity in turbulent flows", 1990. Department Manager, Microelectronics Group, NASA Goddard Space Flight Center, Greenbelt, MD

10. D.M. Kyle: "The instability and breakdown of a round variable-density jet", 1991. Staff Researcher, Oak Ridge National Laboratory, TN

11. A.W. Johnson: "Laminarization and retransition of turbulent boundary layers in supersonic flow", 1993. Combustion/aerothermal design engineer, General Electric Aircraft Engines, OH

12. L.M. Zubair: "Studies in turbulence using wavelet transforms for data compression and

scale separation", 1993. Assistant Professor, Institute of Fundamental Studies, Sri Lanka

13. P. Kailasnath: "Reynolds number effects and the momentum flux in turbulent boundary layers", 1993. Senior Research Scientist, Diagnostic Radiology, Yale Medical School, CT

14. J.R. Saylor: "Differential diffusion in turbulent and oscillatory, non-turbulent water flows", 1993. Assistant Professor, Clemson University, SC

15. G. Stolovitzky: "Statistical order of small scales in turbulence", 1994. Manager, Functional Genomics Program, IBM, Yorktown Heights, NY

16. A. Juneja: "Scaling laws in turbulence: their manifestation and utility", 1995. Director of Product Quality, Egain Corp., Sunnyvale, CA

17. A. Denner: "Classification of cardiac disease state by electrocardiographic signal processing", 1996. Systems Analyst, Morgan Stanley, NY

18. A. Sahay: "The mean velocity and Reynolds shear stress in turbulent pipe and channel flows", 1997. Lecturer, Department of Mathematics, University of Wisconsin, Madison

19. B. Dhruva: "Experiments in high-Reynolds-number turbulence", 1999. Senior Scientist, Schlumberger and Doll, Connecticut

20. R. Bhiladvala: "Development of microfabricated thermal sensors with guard heating for wall shear stress measurements in turbulent flows", 2000. Post-doctoral Fellow, Nanofabrication Center, Cornell University

21. I. San Gil, "Fractal character of isoscalar surfaces in shear free turbulence and some effects of shear on the turbulence structure", 2001. Bioinformatics Specialist, Yale Medical School

22. S. Kurien, "Anisotropy and the universal properties of turbulence", 2001. Post-doctoral Fellow, CNLS, Los Alamos National Laboratory, from Dec. 2001

23. C.M. White, "High Reynolds number turbulence in small apparatus", 2001. Post-doctoral Fellow, Department of Mechanical Engineering, Stanford University, CA

Current Graduate students: K.G. Aivalis (passive scalars, Ph.D. expected 2001); F. Li (experimental fluid dynamics); A. Karpikov (lattice Boltzmann methods for polymer flows);

G. Bewely (experimental fluid mechanics); Jared Carlson (viscoealstic fluids).

Post-Doctoral—only those who stayed for significant amounts of time are listed—Surya Raghu (Ph.D., Yale, Research Engineer, Bowles Fluidics, MD); Rahul Prasad (Ph.D., Yale, Vice President, Science Research Laboratory, CA); Ashvin Chhabra (Ph.D., Yale, Vice President, Chase Manhattan Bank); Richard Everson (Ph.D., Leeds, Associate Professor, Applied Mathematics Laboratory, Mount Sinai Hospital); John Ringland (Ph.D., Texas, Associate Professor of Mathematics, SUNY Buffallo); Hyundoo Shin (Ph.D., Brown, Samsung Electronics Company, South Korea); Anil Suri (Ph.D., Harvard, present address unknown); Daniel Lathrop (Ph.D., Texas, Associate Professor of Physics, University of Maryland); Lareef Zubair (Ph.D., Yale, Assistant Professor, Institute of Fundamental Research, Sri Lanka); Anupam Sahay (Ph.D., Yale, Lecturer, Department of Mathematics, University of Madison-Wisconsin); Eric van Doorn (Ph.D., Duke, Assistant Professor, Department of Physics, Rutgers University); Adonios Karpetis (Ph.D., Yale, Combustion Research Facility, Sandia National Laboratory, Livermore, CA); Rustom Bhiladvala (Ph.D., Yale, Nanofrabrication Center, Cornell University)

Long-term visitors Robert Granger (NRL, one year), Lawrence Sirovich (Brown, one year), Mark Nelkin (Cornell and NYU, twice for half-a-year each time), Thomas Streule (Karlsruhe, six months), Guenter Galtz (Munich, one year), Amador Muriel (CUNY, one year), Yoshiyuki Tsuji (Nagoya, one and one half years); Gustaf Mertensson (Sweden, six months); Jochen Cleve (Dresden, one year); Joerg Schumacher (Marburg, one year); Alexander Bershadskii (Israel, six months).

Publications of Katepalli R. Sreenivasan[1]

- Relaminarization in highly accelerated boundary layers. *J. Fluid Mech.* **61**, 417-448 1973 (with R. Narasimha)
- Rapid distortion of axisymmetric turbulence. *Current Science* **42**, 632-634, 1973
- Distorted wakes. *Adv. Geophys.* **18B**, 317-328, 1974 (with A. Prabhu & R. Narasimha)
- Rapid distortion of shear flows. *Aero. Soc. India, Silver Jubilee Technical Conference, Bangalore*, Paper 2.3, 1974 (with R. Narasimha)
- The determination of intermittency from the probability density function of a passive scalar. *Phys. Fluids* **19**, 1471-1474, 1976 (with R.W. Bilger & R.A. Antonia)
- Diffusion from a heated wall-cylinder immersed in a turbulent boundary layer. In *Proc. Thermofluids Conference, Institution of Engineers*, Hobart, Australia, 103-106, 1976 (with H.Q. Danh & R.A. Antonia)
- Conditional probability densities in a turbulent heated round jet. In *Proc. Sixth Australian Hydraulics and Fluid Mechanics Conference*, Adelaide, Australia, 411-414, 1977 (with R.A. Antonia)
- *Temperature dissipation fluctuations in a turbulent boundary layer. *Phys. Fluids* **20**, 1238-1249, 1977 (with R.A. Antonia & H.Q. Danh)
- On the log-normality of temperature dissipation in a turbulent boundary layer. *Phys. Fluids* **20**, 1986-1988, 1977 (with R.A. Antonia)
- Skewness of temperature derivatives in a turbulent boundary layer. *Phys. Fluids* **20**, 1986-1988, 1977 (with R.A. Antonia)
- Measurements of turbulent fluxes in Bass-Strait. *Physical Oceanography* **78**, 28-37, 1977 (with R.A. Antonia, A.J. Chambers, S. Rajagopalan & C.A. Friehe)
- Properties of wall shear stress fluctuations in a turbulent duct flow. *J. Appl. Mech. Trans. ASME Ser. A* **44**, 389-395, 1977 (with R.A. Antonia)
- Rapid distortion of axisymmetric turbulence. *J. Fluid Mech.* **84**, 497-516, 1978 (with R. Narasimha)

[1]Abstracts, extended abstracts, book reviews, unpublished technical and government reports, non-technical writings, etc., are not included. Papers cited more than 50 times by 2001 are shown with an astersik.

- Structure of turbulent bulges in an axisymmetric jet. In *Structure and Mechanisms of Turbulence*, Vol. 1. 19-30, 1978. *Lecture Notes in Physics* **75**, Springer-Verlag (with R.A. Antonia & D. Britz)

- Joint probability densities and quadrant contributions in a heated turbulent round jet. *AIAA J.* **16**, 867-868, 1978 (with R.A. Antonia)

- Conditional measurements in a heated axisymmetric turbulent mixing layer. *AIAA J.* **16**, 869-870, 1981 (with R.A. Antonia & S.E. Stephenson)

- Accuracy of moments of velocity and scalar fluctuations in the atmospheric surface layer. *Boundary-Layer Meteorology* **14**, 341-359, 1978 (with A.J. Chambers & R.A. Antonia)

- *Relaminarization of fluid flows. *Adv. Appl. Mech.* **19**, 221-309, 1979 (with R. Narasimha)

- Local isotropy and large structures in a heated turbulent jet. *J. Fluid Mech.* **94**, 745-775, 1979 (with R.A. Antonia & D. Britz)

- Response of atmospheric surface layer turbulence to a partial solar eclipse. *J. Geophys. Res.* **84**, 1689-1692, 1979 (with R.A. Antonia, A.J. Chambers, D. Phong-Anant & S. Rajagopalan)

- *Temperature fluctuations and scales in grid-generated turbulence. *J. Fluid Mech.* **100**, 783-795, 1980 (with S. Tavoularis & S. Corrsin)

- On the skewness of the temperature derivative in turbulent flows. *J. Fluid Mech.* **101**, 783-795, 1981 (with S. Tavoularis)

- Turbulent heat transport in passively heated homogeneous and inhomogeneous flows. In *Proc. Third Symposium on Turbulent Shear Flows*, Davis, CA. 1981 (with S. Tavoularis & S. Corrsin)

- The skewness of temperature derivative in asymmetrically heated wake. *Phys. Fluids* **24**, 778-779, 1981 (with S. Tavoularis)

- Evolution of the center-line probability density function of temperature in a plane turbulent wake. *Phys. Fluids* **24**, 1232-1234, 1981

- The decay of scalar fluctuations in isotropic turbulence. *Phys. Fluids* **24**, 1909-1910, 1981

- Approach to self-preservation in plane turbulent wakes. *AIAA J.* **19**, 1365-1366, 1981

- The effect of cooling rate on binary nucleation. *Appl. Sci. Res.* **37**, 183-194, 1981 (with P.P. Wegener)
- A test for gradient transport model and its generalizations. In *Turbulent Shear Flows 3*, edited by L.J.S. Bradbury, F. Durst, B.E. Launder, F.W. Schmidt & J.H. Whitelaw, Springer-Verlag, pp. 96-112, 1981 (with S. Tavoularis & S. Corrsin)
- Laminarescent, relaminarizing and retransitional flows. *Acta Mechanica* **44**, 1-48, 1982
- Equilibrium parameters for two-dimensional turbulent wakes. *J. Fluids Engg., Trans. ASME* **104**, 167-170, 1982 (with R. Narasimha)
- Stabilization effects in flow through helically coiled pipes. *Experiments in Fluids* **1**, 31-36, 1983 (with P.J. Strykowski)
- An instability associated with sudden expansion in pipe flows. *Phys. Fluids* **26**, 2766-2768, 1983 (with P.J. Strykowski)
- Zero-crossings in turbulent signals. *J. Fluid Mech.* **137**, 251-272, 1983 (with A. Prabhu & R. Narasimha)
- Some studies on non-simple pipe flows. *Trans. Inst. Engineers, Australia* **ME8**, 200-208, 1983 (also in *Proc. Eighth Australasian Fluid Mech. Conf.*, 1983)
- On the Prandtl number variation in turbulent shear flows. *International Communication in Heat and Mass Transfer* **11**, 497-501, 1984 (with R.A. Antonia & A.J. Chambers)
- Azimuthal correlations of velocity and temperature fluctuations in an axisymmetric jet. *Phys. Fluids* **27**, 867-875, 1984
- *On the scaling of the turbulence energy dissipation rate. *Phys. Fluids* **27**, 1048-1051, 1984
- On analogies between turbulence in unconfined flows and chaotic dynamical systems. In *Turbulence and Chaotic Phenomena in Fluids*, edited by Tatsumi, 191-196, 1984 (with P.J. Strykowski)
- The effect of contraction on homogeneous shear flows. *J. Fluid Mech.* **154**, 187-213, 1985
- On the fine-scale intermittency in turbulence. *J. Fluid Mech.* **151**, 81-103, 1985
- The control of pressure oscillations in combustion and fluid dynamical systems. *AIAA Paper-85-0540*, 1985 (with B.-T. Chu & S. Raghu)

- The control of transitional flows. *AIAA Paper-85-0559*, 1985 (with P.J. Strykowski)
- Transitional and turbulent wakes, and chaotic dynamical systems. In *Nonlinear Dynamics of Transcritical Flows*, edited by H.L. Jordan, H. Oertel & K. Robert, Springer-Verlag, pp. 59-70, 1985
- *Transition and turbulence in fluid flows and low-dimensional chaos. In *Frontiers of Fluid Mechanics*, edited by S.H. Davis & J.L. Lumley, Springer-Verlag, pp. 41-67, 1985
- Chaos in open systems. In *Dimensions and Entropies in Chaotic Systems*, edited by G. Mayer-Kress, Springer-Verlag, pp. 222-230, 1986
- *The fractal facets of turbulence. *J. Fluid Mech.* **173**, 357-386, 1986 (with C. Meneveau); translated into Japanese: *J. Soc. Heating, Air Conditioning and Sanitary Engineers of Japan* **64**, 65-74, 1989.
- Transitional intermittency in open flows, and intermittency routes to chaos. *Physica D* **23**, 246-258, 1986 (with R. Ramshankar)
- *The multifractal spectrum of the dissipation field in turbulent flows. In *Physics of Chaos and Systems Far from Equilibrium, Nucl. Phys. B. (Proc. Suppl.)*, edited by Minh Doung Van, North-Holland, **2**, 49-76, 1987 (with C. Meneveau)
- *A simple multifractal cascade model for fully developed turbulence. *Phys. Rev. Lett.* **59**, 1424-1427, 1987 (with C. Meneveau)
- Hopf bifurcation, Landau equation and vortex 'shedding' behind circular cylinders. In *Forum on Unsteady Flow Separation, Trans. ASME*, edited by K.N. Ghia, pp. 1-13, 1987 (with P.J. Strykowski & D.J. Olinger)
- A unified view of the origin and morphology of the turbulent boundary layer structure. In *Turbulence Management and Relaminarization*, edited by H.W. Liepmann & R. Narasimha, Springer-Verlag, pp. 37-61, 1987
- The control of acoustically coupled combustion and fluid dynamic instabilities. *AIAA Paper-87-2690*, 1987 (with S. Raghu)
- The fractal dimension of scalar interfaces in turbulent flows. *Fluid Dynamic Transactions of the Polish Academy of Sciences* **14**, 205-219, 1988 (with R.R. Prasad)
- *Nonlinear dynamics in the wake of an oscillating cylinder. *Phys. Rev. Lett.* **60**, 797-801, 1988; reprinted in *Chaos II*, edited by H. Bai-Lin, World-Scientific, pp. 493-496, 1990

- The multifractal nature of the dissipation field of passive scalars in fully turbulent flows. *Phys. Rev. Lett.* **61**, 74-77, 1988 (with R.R. Prasad & C. Meneveau)

- Flat plate drag reduction by turbulence management. *Proc. Ind. Acad. Sci., Series C (Sadhana)* **12**, 15-30, 1988 (with R. Narasimha)

- *Singularities of the equations of fluid motion. *Phys. Rev. A* **38**, 6287-6295, 1988 (with C. Meneveau)

- Universal dynamics in the wake of an oscillating cylinder. In *Proc. Int. Symp. on Flow Induced Vibrations and Noise (ASME)* pp. 1-29, 1988 (with D.J. Olinger)

- The fractal geometry of interfaces and the multifractal distribution of dissipation in fully turbulent flows. *J. Pure and Applied Geophys.* **131**, 43-60, 1989 (with R.R. Prasad, C. Meneveau & R. Ramshankar)

- *Mixing, entrainment, and fractal dimension of interfaces in turbulent flows. *Proc. Roy. Soc. Lond.* **421A**, 79-108, 1989 (with R. Ramshankar & C. Meneveau)

- Scalar interfaces in digital images of turbulent flows. *Experiments in Fluids* **7**, 259-264, 1989 (with R.R. Prasad)

- New results on the fractal and multifractal structure of the large Schmidt number passive scalars in fully turbulent flows. *Physica D* **38**, 322-329, 1989 (with R.R. Prasad)

- *Absolute instability in variable density jets. *Experiments in Fluids* **7**, 309-317, 1989 (with S. Raghu & D. Kyle)

- The turbulent boundary layer. In *Frontiers in Experimental Fluid Mechanics*, edited by M. Gad-el-Hak, Springer, pp. 159-209, 1989

- *Measurement of $f(\alpha)$ from scaling of histograms, and applications to dynamical systems and fully developed turbulence. *Phys. Lett. A* **137**, 103-112 (with C. Meneveau)

- Extraction of underlying multiplicative processes from multifractals via the thermodynamic formalism. *Phys. Rev. A* **40**, 4593-4611, 1989 (with A. B. Chhabra & R.V. Jensen)

- Direct determination of the $f(\alpha)$ singularity spectrum and its applications to fully developed turbulence. *Phys. Rev. A* **40**, 5284-5294, 1989 (with A.B. Chhabra, C. Meneveau & R.V. Jensen)

- *The measurement and interpretation of fractal dimensions of surfaces in turbulent flows. *Phys. Fluids A* **2**, 792-807, 1990 (with R.R. Prasad)

- *Joint multifractal measures: Theory and applications to turbulence. *Phys. Rev. A* **41**, 894-913, 1990 (with C. Meneveau, P. Kailasnath & M.S. Fan)

- Interface dimension in intermittent turbulence. *Phys. Rev. A* **41**, 2246-2248, 1990 (with C. Meneveau)

- Quantitative three-dimensional imaging and the structure of passive scalar fields in fully turbulent flows. *J. Fluid Mech.* **216**, 1-34, 1990 (with R.R. Prasad)

- *On the formation and suppression of vortex 'shedding' at low Reynolds numbers. *J. Fluid Mech.* **218**, 71-107, 1990 (with P.J. Strykowski)

- Some results concerning the 'dynamical systems approach' to the 'turbulence problem'. In *Chaos: Soviet-American Perspectives in Nonlinear Science*, edited by D.K. Campbell, American Institute of Physics, pp. 223-242, 1990. Also, in a slightly different form and under the title: The utility of dynamical systems approaches: Comment 3. In *Whither Turbulence? Turbulence at Cross Roads*, edited by J. L. Lumley, Springer, 269-291, 1990

- Wavelet analysis of the turbulent jet. *Phys. Lett. A* **145**, 314-322, 1990 (with R. Everson & L. Sirovich)

- Turbulence and the tube. *Nature* **344**, 192-193, 1990

- *Fractal geometry of isoscalar surfaces in turbulence: theory and experiment. *Phys. Rev. Lett.* **67**, 1739-1742, 1991 (with P. Constantin & I. Procaccia)

- Do scalar fluctuations in turbulent shear flows possess local universality? *Physica D* **51**, 567-568, 1991

- *The multifractal nature of the turbulent energy dissipation. *J. Fluid Mech.* **224**, 429-484, 1991 (with C. Meneveau)

- *Local isotropy of passive scalars in turbulent flows. *Proc. Roy. Soc. Lond.* **434**, 165-182, 1991

- *Fractals and multifractals in fluid turbulence. *Annu. Rev. Fluid Mech.* **23**, 539-600, 1991 (Translated into Japanese.)

- Probabilistic multifractals and negative dimensions. In *New Perspectives in Turbulence*, edited by L. Sirovich, Springer-Verlag, pp. 271-288, 1991 (with A.B. Chhabra)

- Negative dimensions: Theory, computations and experiment. *Phys. Rev. A* **43**, 1114-1117, 1991 (with A.B. Chhabra)

- Turbulent flows. In Encyclopedia of Science and Technology (seventh edition), McGraw Hill, **18**, 632-636, 1991

- Characterization and compression of turbulent signals and images using wavelet-packets. In *Studies in Turbulence*, edited by T.B. Gatski, S. Sarkar & C.G. Speziale, Springer-Verlag, pp. 489-513, 1991

- Remarks on high-Reynolds-number turbulence experiments and facilities. In *High Reynolds Number Flows using Liquid and Gaseous Helium*, edited by R.J. Donnelly, Springer-Verlag, pp. 181-184, 1991

- Turbulent flows and coupled maps. In *Spontaneous Formation of Space-Time Structures and Criticality*, edited by T. Riste & D. Sherrington, NATO ASI series, Kluwer Academic Publications, pp. 425-431, 1991

- *Scale-invariant multiplier distributions in turbulence. *Phys. Rev. Lett.* **68**, 2762-2766, 1992 (with A.B. Chhabra)

- *The probability density of velocity increments in turbulent flows. *Phys. Rev. Lett.* **68**, 2766-2780, 1992 (with P. Kailasnath & G. Stolovitzky)

- *Kolmogorov's refined similarity hypotheses. *Phys. Rev. Lett.* **69**, 1178-1181, 1992 (with G. Stolovitzky & P. Kailasnath)

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