

National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

Curriculum Vitae



Profile in Brief:

Topper in Anna University M. Sc.(Applied Mathematics), qualified in UGC, CSIR national level examinations for Junior Research Fellowships in 1987, Obtained Ph. D. in 1992 under the Guidance of professor G. Ramanaiah F. N. A. Sc., joined as a faculty member in the department of mathematics and computer applications, REC, Trichy in 1994, taught varied courses on mathematics and applied mathematics for both UG – PG and presently professor in the department of mathematics, NIT, Trichy from 2018.

Commissioned as a Pilot officer in 1997 and served as an Associate NCC officer for more than a decade in REC/NIT, Trichy. Guided few Ph. D.'s, doctoral committee member for many students and few times member in mathematics board of studies of reputed Institutions. Research areas of interest include Fluid mechanics, Operations Research and recently Applied Statistics. In particular, convective heat and mass transfer, flow through porous media, binomial moment problems and distribution theory/applications. Published many research papers in reputed international journals and also refereed many research papers.

1. Name: V. Kumaran
2. Designation: Professor
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Telephone: 0431-250-3670 (O)
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5. Email (Primary): kumaran@nitt.edu Email (Secondary):
kum123sug@gmail.com
6. Field(s) of Specialization/Interest
 - Fluid Mechanics
 - Operations Research
 - Applied Statistics (recent)

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7. Employment Profile

- Lecturer in the Department of Mathematics, Dr. M. G. R. Engineering College, Madras, during 16th Nov.92 – 31st Dec.93
- Faculty Member in the Department of Mathematics & Computer Applications, Regional Engineering College, Tiruchirappalli during 16th Sept.94 – 17th Dec.96
- Lecturer in the Department of Mathematics & Computer Applications, Regional Engineering College, Tiruchirappalli during 18th Dec.96 – 17th Dec. 2000
- Senior Lecturer in Department of Mathematics, National Institute of Technology, Tiruchirappalli during 18th Dec. 2000 – 30th June 2006
- Assistant Professor in the Department of Mathematics, National Institute of Technology, Tiruchirappalli from 1st July 2006 – 30th June 2009
- Associate Professor in the Department of Mathematics, National Institute of Technology, Tiruchirappalli from 1st July 2009 – 11th March 2018
- Professor in the Department of Mathematics, National Institute of Technology, Tiruchirappalli from 12th March 2018 onwards

8. Academic Qualifications (From Highest Degree to High School)

- Ph. D. (Applied Mathematics) from Anna University in 1992
 - Title of the thesis: Buoyancy induced boundary layer flows\
 - Supervisor: Professor G. Ramanaiah F. N. A. Sc.
- M.Phil.(Mathematics) from Anna University in 1989 with 79%
- M. Sc. (Applied Mathematics) from MIT, Madras in 1986 with 85%
- B. Sc. (Mathematics) from Pachaiyappa's College, Madras in 1984 with 69%
- H. Sc. from Govt. Hr. Sec. School, Anantapuram, Tamilnadu in 1981 with 69%
- S. S. L. C. from Govt. Hr. Sec. School, Anantapuram in 1979 with 76%

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9. Academic/Administrative Responsibilities within the University

- *M. Sc. (Mathematics) Academic Committee Chairman during 2020 to till date*
- *Associate NCC Officer in NIT-T during July 1997 – Feb. 2009 (11.5 Years)*
- *Associate Dean (R & C) during Jan. 2010 – 14th Sept. 2010*
- *Coordinator for UG I year Mathematics courses – few times*
- *Staff advisor for a NITT-Fest*
- *Security Committee Member for many NIT-T programmes as NCC officer*

10. Academic/Administrative Responsibilities outside the University

Research papers reviewed for the international journals

- *International Journal of Heat Mass Transfer (Elsevier, SCI, 2020 IF: 5.431)*
- *Heat Mass Transfer (Springer, SCI, 2020 IF: 2.464)*
- *Boundary Value Problems (Springer/Hindawi, open access, 2010 IF: 1.047)*
- *Chemical Engineering Communications (Taylor & Fransis, SCI, 2020 IF: 2.494)*
- *International Journal of Thermal Sciences (Elsevier, SCI Expanded, 2020 IF: 4.779)*
- *Journal of Applied Mathematics (Hindawi, WoS, Scopus)*
- *Journal of Applied Math. and Computing (Springer, SCI Expanded, 2020 IF: 1.686)*
- *Zeitschrift für Naturforschung A – Physical Sciences (De Gruyter, SCI, 2020 IF 1.426)*
- *Int. Journal of Computer Mathematics (Taylor & Fransis, SCI Expanded, 2020 IF: 1.931)*
- *Commun. in Nonlinear Sci. Numer. Simulation (Elsevier, SCI Expanded, 2020 IF: 4.186)*
- *Brazilian J. of Chemical Engg. (Springer, SCI Expanded, 2020 IF: 1.232)*
- *Bulletin of Malaysian Mathematical Sciences, Malaysia (Springer, SCI Expanded, 2020 IF 1.554).*
- *Annals of Operations Research (Springer, SCI, 2020 IF 4.854)*

Board of Studies member in mathematics (few times) in the following Institutions

- PSGR Krishnammal college for women, Coimbatore
- K.S.R. College of Engineering, Tiruchengode
- Satyabama Institute of Science and Technology, Chennai

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11. Awards, Associateships etc.

- M.Sc. 1st rank in Anna University
- Dr. Narasinga Rao Prize for the best student in Operations Research group in M. Sc.
- Obtained CSIR-RA in 1992
- Reviewer for more than 15 reputed international journals
- Got commissioned as 'Pilot Officer' in 1998 and as 'Flying Officer' in 2001

12. Fellowships

- Qualified in UGC-JRF in August 1986
- Qualified in CSIR- JRF in November 1986

13. Details of Academic Work

(i) Curriculum Development

- Involved in UG Mathematics curriculum development
- Involved in PG Mathematics curriculum development

(ii) Courses taught at Postgraduate and Undergraduate levels

- UG level: Engineering mathematics, Ordinary differential equations, Real analysis, Numerical methods, Linear algebra, Operations Research, Probability and Statistics, Applied Statistics
- PG level: Applied mathematics, mathematical programming, Inventory control, Stochastic processes, Dynamic programming, Probability and Statistics

(iii) Projects guided at Postgraduate level

- Guided around 20 M. C. A. and M. Sc. (OR & CA) students in REC-T
- Guided 2 M. Sc. (Mathematics) students in NIT, Trichy (2020-2022)

14. Details of Major R&D Projects – Nil

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15. PhDs guided:

- R. Swarnalatha, 'A class of discrete binomial moment problems', Department of Mathematics, NIT, Tiruchirappalli (April 2018)
- R. Tamizharasi, 'An approximate analytic technique for solving a class of nonlinear boundary value problems and its applications', Department of Mathematics, NIT, Tiruchirappalli (July 2012)
- Anne Rosaline, 'A study on safety measures of road traffic accidents in Tamilnadu', Faculty of Sci. & Hum., Anna University, Chennai (November 2012)
- A. Vanav Kumar, "Unsteady boundary layer flow past a stretching sheet", Department of Mathematics, NIT, Tiruchirappalli (July 2011)
- K. Senthil Kumar, 'A study on risk in traffic flow and effective safety management', Faculty of Management Sciences, Anna University, Chennai (November 2008).

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

- International Workshop on '*Wave Dynamics and Stability of Thin Film Flow Systems*', IIT, Chennai, September 1-4, 2006.
- *Presented* the paper 'Approximate analytical solutions of stagnation point flows in a porous medium' and *Co-Chaired a session* in the Conference on *Non-linear Science and Complexity*, Beijing, China, Aug. 7-12, 2006.
- International Workshop on '*Mathematics and Physics of Complex and Nonlinear Systems*', IIT, Kanpur, March 14 – 27, 2004.
- Generalized inverse and its application, *Regional Workshop on Analysis*, Theivanai Ammal College for Women, Villupuram, 30 -31 Jan. 2004.
- Effect of axial heat conduction in flow past a stretching sheet - *35th ISTAM CONGRESS*, Anna University, Madras, 19-22 Dec. 1990.
- Free convection near an impulsively started and heated / cooled vertical plate with temperature dependent heat sink - *NAT. SEMINAR ON COMP. TECHNIQUES IN CONTINUUM MECH.*, Anna University, Madras, 29-31 Jan. 1990.
- Pulsatile flow and heat transfer in a porous channel of porous medium - *4th ANN. CONF. OF THE RAMANUJAN MATH. SOC.*, Alagappa University, Karaikudi, India, 20-22, May 1989.

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- Effect of cross flow on oscillatory flow in a porous medium between two parallel plates in relative motion - *Ind. Sci. Congress*, M.K.U., *Madurai*, India, 7-12 Jan 1989.
- Generalization of Stokes first problem to immiscible fluid layers - *54th ANN. CONF. OF THE IND. MATH. SOC.*, *University of Poona*, India, 27-30 Dec. 1988.
- Heat transfer in Stokes first problem - *33rd ISTAM CON.*, BHU, *Varanasi*, 19-22 Dec. '88.
- Oscillatory flow of a viscous fluid over a porous bed with suction at the bottom - *4th ANN. CONF. OF THE MATH. SOC.*, B.H.U., *Varanasi*, India, 16-17 Dec. 1988.
- Steady slow laminar flow in a convergent or divergent channel with suction at one wall and injection at the other wall - *2nd CONGRESS OF THE A. P. SOC. for MATH. SCI.*, S.K. University, *Anantapur*, India, 13-14, Nov. 1988.
- Solving a mixed B.V.P. & Diffusion problem - Random walk approach - *32nd ISTAM CONGRESS*, IIT, *Bombay*, 17-20 Dec. 1987.
- Bounds on probability of a finite union – *International conference on Operations Research*, *Indian Statistical Institute*, *Kolkata*, 8-10 Jan. 2004.
- NCC Air wing senior division *pre-commissioning course* held at Air force Admin. College, *Coimbatore*, during Jun. 8 - Aug. 29, 1998 and got commissioned as 'Pilot Officer'.
- NCC Airwing senior division refresher course held at Air force Administrative College, *Coimbatore*, 11th Dec. 2000 – 6th Jan. 2001.
- *Winter course on 'Complementarity and Game theory'* , *ISI*, *New Delhi*, 15 –27 Dec. 1997.
- *International Workshop on " Role of fluid mechanics on materials manufacturing and processing"*, UGC-DSA Centre for Fluid Mech., *Bangalore University*, 1–3 Jan. 1996.
- *Seminar on 'Math. Modelling'* , *St. Joseph's College*, *Trichy*, 30 – 31 Jan.1997.
- *ISTE Winter School on 'Performance appraisal and development system'* , *REC-Trichy*, 20-25 Jan. 1997.
- *AICTE-ISTE short term training programme on 'Advanced Mathematical Methods in Engineering & Science '* , *VNIT*, *Nagpur*, Nov.11 – 23, 2002

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17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

- Presented **4 papers, organized a symposium** jointly with Professor I. Pop (University of Cluj, Romania) and **chaired a session** at the 3rd conference on nonlinear science and complexity, Cankaya University, Ankara, **Turkey**, 28 – 31 July 2010.

18. Invited Talks delivered

- Delivered an *Invited Talk* on ‘Flow through Porous Media’ and *Chaired a session* in the *National Seminar on Applied Mathematics* held at Annamalai University, *Chidambaram* on 07.03.2008.
- Delivered an *Invited Talk* on ‘Advances in Boundary Layer Theory’ and *Chaired a session* in the *National Seminar on Recent Trends in Applied Mathematics* held at *PSGR Krishnammal College for Woman, Coimbatore* on 12.03.2007.

19. Membership of Learned Societies

- Life member in **Indian Society for Technical Education** (LM 23244)
- Life member in **Indian Society for Theoretical and Applied Mechanics** (L/212)

20. Academic Foreign Visits

- Paper presentation in Beijing, China, during 06-13, Aug. 2006
- Joint Research in University of Leeds, UK, during 3-27, July 2007
- Paper presentation/symposium organized in Ankara, Turkey, during 28-31, July 2010.

21. Publications

(A) Refereed Research Journals:

Papers published in **SCI** journals: (**14 papers**)

- R. Swarnalatha and V. Kumaran, Sharp probability bounds for the binomial moment problem with symmetry, *Operations Research Letters.*, Vol. 46, NO. 1, 2018, Pages 37-43 (*SCI*, 2020 *Impact factor*: **1.151**).
- R. Swarnalatha and V. Kumaran, Bounds for the probability of the union of events with unimodality, *Ann. Oper. Res.*, DOI 10.1007/s10479-017-2629-6, published online on 6th September 2017(*SCI*, 2020 *Impact factor*: **4.854**).

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- V. Kumaran and R. Swarnalatha, Bounds for the probability of events following monotonic distribution, *Discrete Applied Mathematics*, Vol. 223, 2017, Pages 98-119 (**SCI**, 2020 Impact factor: **1.254**)
- J.H. Merkin (**UK**) and V. Kumaran, The unsteady heat transfer due to a heat source in an MHD stretching sheet flow, *Meccanica*, Vol. 47, No. 8, 2012, Pages 1837-1847 (**SCI**, 2020 Impact factor: **2.258**)
- V. Kumaran, R. Tamizharasi, J. H. Merkin (**UK**) and K. Vajravelu (**USA**), On thin film flow of a third-grade fluid down an inclined plane, *Arch. Appl. Mech.*, Vol. 82, No. 2, 2012, Pages 261-266 (**SCI**, 2020 Impact factor: **1.976**)
- V. Kumaran and R. Tamizharasi, Brinkman Flow Past a Stretching Sheet, *Transport in Porous Media*, Vol. 87, No. 2, 2011, Pages 541-560 (**SCI**, 2020 Impact factor: **3.019**)
- V. Kumaran, A. Vanav Kumar and I. Pop (**Romania**), Transition of boundary layer flow past a stretching sheet due to a step change in applied constant mass flux, *Acta Mechanica*, Vol. 216, No's. 1-4, 2011, Pages 139-145 (**SCI**, 2020 Impact factor: **2.698**)
- J.H. Merkin (**UK**) and V. Kumaran, Unsteady MHD boundary-layer flow on a shrinking sheet, *Euro. J. Mech. - B/Fluids*, Vol. 29, No. 5, 2010, Pages 357-363 (**SCI**, 2020 Impact factor: **2.598**)
- H.I. Andersson (**Norway**) and V. Kumaran, On sheet-driven motion of power-law fluids, *Int. J. Non-Linear Mechanics*, Vol. 41, No. 10, 2006, Pages 1228-1234 (**SCI**, 2020 Impact factor: **3.336**)
- V. Kumaran and I. Pop (**Romania**), Steady free convection boundary layer over a vertical flat plate embedded in a porous medium filled with water at 4 °C, *Int. J. Heat Mass Transfer*, Vol. 49, No's. 17-18, 2006, Pages 3240-3252 (**SCI**, 2020 Impact factor: **5.431**)
- V. Kumaran, Erratum in 'MHD flow past a stretching sheet by T.Y. Na and I. Pop - Acta Mechanica - Vol. 116, Pages 235-238, 1996, Vol.121, No's 1-4, 1997, Page 237 (**SCI**, 2020 Impact factor: **2.698**)
- V. Kumaran and G. Ramanaiah, A note on flow over a stretching sheet, *Acta Mechanica*, Vol.116, 1996, Pages 229-233(**SCI**, 2020 Impact factor: **2.698**)
- G. Ramanaiah and V. Kumaran, Natural convection about a permeable cone and a cylinder subjected to a radiation boundary condition, *Int. J. Engg. Sci.*, Vol.30, 1992, Pages 693-699 (**SCI**, 2020 Impact factor: **7.155**)
- V. Kumaran and G. Ramanaiah, Effect of cross flow on oscillatory flow in a porous medium between two parallel plates in relative motion, *ASME Trans. J. Fluids Engg.*, Vol.113, 1991, Pages 151-154 (**SCI**, 2020 Impact factor: **1.995**).

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Papers published in **SCI Expanded** journals: **(10 papers)**

- V. Kumaran and R. Swarnalatha, Sharp bounds for the probability of union of n events when m number of binomial moments are known, *Optimization and Engineering.*, Vol. 21, 2020, Pages 241-271 (**SCI Expanded**, 2020 Impact factor: **2.760**).
- R. Tamizharasi and V. Kumaran, Pressure in MHD/Brinkman flow past a stretching sheet, *Commun. Nonlin. Sci. Numer. Simulat.*, Vol. 16, No. 12, Dec. 2011, Pages 4671-4681 (**SCI Expanded**, 2016 Impact factor: **2.784**)
- V. Kumaran and I. Pop (**Romania**), Nearly parallel Blasius flow with slip, *Commun. Nonlin. Sci. Numer. Simulat.*, Vol. 16, No. 12, Dec. 2011, Pages 4619-4624 (**SCI Expanded**, 2020 Impact factor: **4.186**)
- J.H. Merkin (**UK**) and V. Kumaran, Free convection stagnation-point boundary-layer flow in a porous medium with a density maximum, *Int. J. Ther. Sci.*, Vol. 50, No. 11, Nov. 2011, Pages 2176-2183 (**SCI Expanded**, 2020 Impact factor: **4.779**)
- V. Kumaran, A.K. Banerjee, A. Vanav Kumar and I. Pop (**Romania**), Unsteady MHD flow and heat transfer with viscous dissipation past a stretching sheet, *Int. Commun. Heat Mass Transfer*, Vol. 38, No.3, March 2011, Pages 335-339 (**SCI Expanded**, 2020 IF: **6.782**)
- E. Magyari (**Switzerland**) and V. Kumaran, Generalized Crane flows of micropolar fluids, *Commun. Nonlin. Sci. Numer. Simulat.*, Vol. 15, No. 11, Nov. 2010, Pages 3237-3240 (**SCI Expanded**, 2020 Impact factor: **4.186**)
- H.I. Andersson (**Norway**) and V. Kumaran, Comment on “Unsteady flow of a second grade fluid film over an unsteady stretching sheet” [Math. Comput. Model. 48 (2008) 518–526], *Math. Comp. Modelling*, Vol. 52, No's. 9-10, Nov. 2010, Pages 1706-1707 (**SCI Expanded- discontinued from 2014**, 2016 Source Normalized Impact factor: **2.224**)
- V. Kumaran, A. Vanav Kumar and I. Pop (**Romania**), Transition of MHD boundary layer flow past a stretching sheet, *Commun. Nonlin. Sci. Numer. Simulat.*, Vol. 15, No. 2, February 2010, Pages 300-311 (**SCI Expanded**, 2020 Impact factor: **4.186**)
- V. Kumaran, R. Tamizharasi and K. Vajravelu (**USA**), Approximate analytic solutions of stagnation point flow in a porous medium, *Commun. Nonlin. Sci. Numer. Simulat.*, Vol. 14, No. 6, June 2009, Pages 2677-2688 (**SCI Expanded.**, 2020 Impact factor: **4.186**)
- V. Kumaran, A.K. Banerjee, A. Vanav Kumar and K. Vajravelu (**USA**), MHD flow past a stretching permeable sheet, *Appl. Math. Comp.*, Vol. 210, No. 1, Apr. 2009, Pages 26-32 (**SCI Expanded**, 2020 Impact factor: **4.397**)

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Papers published in refereed journals; (08 papers)

- Anne Rosaline A. and V. Kumaran, Analysis of accident reduction factor using pavement marking in intersection and plain roads, *Bull. Pure Appl. Sci.*, Vol 28E, pp 91-107, 2009.
- Senthil Kumar K., Suja S.K. and V. Kumaran, A new mode of transportation to minimize environment damage due to diesel exhausts, *Eco Chronicle*, Vol. 2, pp. 17-20, 2007.
- V. Kumaran and I. Pop, Analytic solutions of free convection boundary layer flow over a vertical flat plate embedded in a porous medium, *Int. J. Fluid Mechanics Research*, Vol. 31, No. 6, pp. 563-573, 2004.
- V. Kumaran, Comments on 'Unsteady free convection interaction with thermal radiation Boundary layer flow past a vertical porous plate', *J. Math. & Phy. Sci.*, Vol.30, pp. 159-160, 1996.
- V. Kumaran and G. Ramanaiah, Effect of thermal dispersion on non-Darcy free convection over horizontal surfaces in saturated porous media, *J. Energy, Heat and Mass Transfer*, Vol.17, pp.313-318, 1994.
- G. Ramanaiah and V. Kumaran, Darcy - Brinkman free convection about wedge and a cone subjected to a mixed thermal boundary condition, *Int. J. Math. Math. Sci.*, Vol.15, No.4, pp.789- 794, 1992.
- V. Kumaran and G. Ramanaiah, Viscous lifting and drainage of a second-order fluid on a vertical plate, *Bulletin of Calcutta Math. Soc.*, Vol.84, pp.313- 322, 1992.
- J. H. Merkin and V. Kumaran, Free convection boundary layer on a vertical surface with prescribed heat flux at small Prandtl number, *Int. J. Math. Math. Sci.*, Vol.15, No.3, pp.605-608, 1992.

(B) Conferences/Workshops/Symposia Proceedings

- Empirical analysis of probabilistic bounds, (jointly with R. Swarnalatha) - Proc. of the Int. Conf. on Recent trends in Operations Research and Statistics, IIT Roorkee, pp. 125-139, December 2017.
- Unsteady MHD flow past a stretching sheet due to a heat source/sink (jointly with A.K. Banerjee, A. Vanav Kumar) - Proc. of the 3rd Conf. on Non-linear Science and Complexity, Ankara, *Turkey*, 28-31, July 2010.
- Impulsive boundary layer flow past a permeable quadratically stretching sheet - (jointly with A. Vanav Kumar and JSC Babu) - Proc. of the 2nd Conf. on Non-linear Science and Complexity, Porto, *Portugal*, 2008. (Presented by JSC Babu)

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- Approximate analytical solutions of stagnation point flows in a porous medium - (jointly with *R. Tamilarasi*) - Proc. of the 1st Int. Conf. on Non-linear Science and Complexity, Beijing, *China*, Vol.1, 2006.
- Bounds on probability of a finite union (Jointly with A. Prekopa, USA)– International conference on Operations Research, *Indian Statistical Institute, Kolkata*, 8-10 Jan. 2004.
- Convective heat transfer due to a rotating disk subjected to a mixed thermal boundary condition - (jointly with *G. Ramanaiah*) - Proc. of the 13th IMACS World Congress on Comp. and Appl. Math., *Ireland, U.K.*, Vol.2, pp.896-897, 1991.
- Natural convection on a permeable vertical and horizontal plates subjected to a radiation boundary condition - (jointly with *P G. Ramanaiah*) – Proc. of the 36th ISTAM Congress, India, Vol.36, pp.31-44, 1991.
- Oscillatory flow of a viscous fluid over a porous bed with suction at the bottom - (jointly with *G. Ramanaiah*) - Proc. of the Math. Soc., B.H.U., India, Vol.4, pp.15-21, 1988.

(C) Books & Monographs

- Bounds on Probability of a finite union (jointly with *Prof. Andras Prekopa, Rutgers University, USA*), Chapter-6, **Operations Research with economics and industrial applications- emerging trends (2005)**, pp.77-84, (Editors: S. K. Neogy, S.R. Mohan, Indian Statistical Institute, New Delhi), Anamaya Publishers, New Delhi.