

Curriculum Vitae

Name: K. Nandakumar, PhD (Princeton), P. Eng. FCIC, FEIC, FCAE

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Paul Horton Endowed Chair Professor
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Date of Birth: October 24, 1951.

Current position: Gordon A. and Mary Cain Endowed Chair #2

Research Interests: Multiphase Computational Fluid Dynamics,
Direct Numerical Simulation of Multiphase flows
Discrete Particle Modelling,
CFD modelling of industrial Processes,
Modeling of Solid Oxide Fuel cells and
Modeling of polymer processing operations,
Bifurcation phenomena

EDUCATION:

<i>Name of University</i>	<i>Field of Study</i>	<i>Degree</i>	<i>Period</i>
Madras University, INDIA	Chemical Engineering	B. Tech.	1968-73
Univ. of Saskatchewan, CANADA	Chemical Engineering	M. Sc.	1973-75
Princeton University, USA	Chemical Engineering	Ph. D.	1975-79

SCHOLASTIC HONOURS, FELLOWSHIPS, MEMBERSHIPS ETC.

1. First rank in the B. Tech. degree examination.
2. Received Merit Scholarship during B. Tech. in 1969-70, 1971-73.
3. Received University of Saskatchewan, Unit Scholarship during M. Sc. in 1973-75.
4. Received a fellowship from Princeton University during Ph. D.
5. Member of American Institute of Chemical Engineers, 1979-96.
6. Member of Canadian Society for Chemical Engineering, 1985-present
7. Member of American Physical Society, 1991-96.
8. Member of Association of Professional Engineers, Geologists & Geophysicists of Alberta, 1985-present
9. Teaching awards for excellence in undergraduate teaching within the Department of

- Chemical Engineering for 1985, 1991, 1997-98, 1998-99 and 2000-01.
10. Alexander von Humboldt research fellowship - 1989-1990.
 11. Albright & Wilson Americas Award - 1991. An annual award given by the Canadian Society for Chemical Engineering for distinguished contribution in chemical engineering before the age of 40.
 12. Elected *Fellow of the Chemical Institute of Canada*, 1991.
 13. McCalla professorship - 1992-93
 14. Listed in American Men & Women of Science, since the 18th Edition, 1992-93.
 15. Distinguished speaker series lecture at University of Waterloo, October 1996 and March 2004.
 16. ESTAC Award for Meritorious Research, 2000.
 17. The AC Rutherford Award for Excellence in Undergraduate Teaching, 2001.
 18. The *Killam annual professorship* at the University of Alberta, 2001.
 19. The APEGGA Excellence in Education Award, 2002.
 20. Saritorius Chemcon-2003 Distinguished speaker award, Dec 2003. IChE, India.
 21. Keynote speaker at the PPS 2004 Americas Regional Meeting, Florianopolis, Brazil (2004).
 22. Prof. B. D. Tilak Visiting Fellowship from the UICT, Mumbai in 2004-2005.
 23. C. K. Murthy Memorial Lecture award delivered at the CHEMCON 2006 held in Ankleshwar, India during Dec 27-30, 2006.
 24. Elected *Fellow of Engineering Institute of Canada*, 2007.
 25. Elected *Fellow of the Canadian Academy of Engineering*, 2007.
 26. Member of Editorial Board of *Indian Chemical Engineer* since Dec 2006.
 27. Member of Editorial Board of *The Open Fuels and Energy Science Journal* since May 2007.
 28. Member of Advisory Board of *Chemical and Engineering Technology* since Sept 2007-2010.
 29. Shrimati Kusumben and Shri Mathradas Kothari Visiting Professorship in Chemical Engineering conferred by UICT, Mumbai, 2008
 30. *The Frank Spragins Technical Award* given by APEGGA SUMMIT Awards in April 2008 in recognition by peers of integrity, expertise and outstanding accomplishments in the field of engineering.
 31. *RS Jane Memorial Award*, the premier award from *The Canadian Society for Chemical Engineers*, presented annually to an individual who has made significant contributions to chemical engineering or industrial chemistry in Canada. October 2008.
 32. *Distinguished Alumni Award from National Institute of Technology*, May 2009.
 33. Editor-in-Chief, *Int J Nonlinear Sciences & Numerical Simulation*, Jan 2011-2012.
 34. Associate Editor of *Int Journal of Numerical Analysis & Modeling, Series B*. Jan 2011-
 35. Editorial Board of *Chemical Engineering & Technology*, Jul 2008-
 36. Editorial Board of *Int. Journal of Advanced Thermofluid Research*, Nov 2011-
 37. Editorial Board of *Journal of Chemical and Process Engineering*, Jul 2104-
 38. Editorial Board of *Journal of Chemical and Petroleum Engineering*, Jul 2104-
 39. Editorial Board of *Journal of Engineering*, Jul 2014- (*Hindawi Publishing Corp*)
 40. Adjunct Professor of Center for Computation and Technology, 2013-

Positions held

Sep'79-Apr'81	Post-Doctoral fellow at University of Alberta, Edmonton, Alberta
May'81-Dec'82	Research Engineer, Gulf Canada Ltd., R & D Dept., Toronto, Ontario
Jan'83-Jun'87	Associate Professor, University of Alberta, Edmonton, Alberta
July '87-Dec 2007	Professor, University of Alberta, Edmonton, Alberta
Jan 2008-present	Professor emeritus at the University of Alberta.
Aug'07-Jul'09	GASCO Chair professor at The Petroleum Institute, Abu Dhabi.
Aug'09-present	Cain Chair Professor, Louisiana State University, Baton Rouge
Jan'96-Jun'97	Visiting professor, Indian Institute of Science, Bangalore, India.
May'02-Jul'02	Visiting Scientist, DSTO, Australia
Jun'03-Dec'03	Visiting professor, National University of Singapore, Singapore.
Jul'05-Aug'06	Associate chair (research), University of Alberta
Jan'05-Dec'09	Editor-in-Chief, <i>The Canadian Journal of Chemical Engineering</i>
Nov'06-Oct'09	Chair Professor, South China University of Technology, Guangzhou
Jan'11-Dec'12	Editor-in-Chief, <i>Int J Nonlinear Sciences & Numerical Simulation</i>

TEACHING EXPERIENCE

I have taught a number of courses at a variety of places. The following is a partial list.

Undergraduate level courses

Fluid Mechanics
Heat Transfer
Equilibrium Stage Processes
Diffusion Operations
Mathematical Applications
Computational methods in chemical engineering
Introduction to MATLAB

Graduate level courses

Advanced Fluid Mechanics
Selected Topics in Fluid Mechanics
Numerical solutions of engineering problems
Selected Topics in Computational Fluid Dynamics
Colloids and Interfaces.

UNIVERSITY & PROFESSIONAL ACTIVITIES/SERVICES

1. Member of Faculty Evaluation Committee during 1984-85, 1997-98.
2. Member of Admissions, Promotions & Timetable committee during 1984-1986.
3. Member of local CSChE Executive Committee during 1983-84.
4. Member of General Faculties Council July 1, 1987-June 30, 1989.
5. Member of Selection Committee for (a) the Dean of Graduate Studies, 1987; (b) Chair of Mechanical Engineering 1998.
6. Chairman of ad hoc committee for selection of a minisupercomputer for the University of Alberta -1991
7. Member of the task force on research computing, April 1991.
8. Member of the Central Research Fund engineering working group, March 1993-Feb. 96.
9. Member of the ECC July 1993-June 96.
10. Reviewer to the following journals: AICHEJ, J. Heat Transfer, Can. J. Chem. Eng., Chemical Engineering communications, Chemical Engineering Science, Physics of Fluids

- A, Journal of Fluid Mechancis, Journal of Fluids Engineering, International Journal of Heat Mass Transfer, Proc. Roy Soc.
11. Instructor to Syncrude Canada on Computational Fluid Dynamics – April 2003, February 2004, April 2004.
 12. Member of Faculty Based Information and Communication Technology Task Force, since 2005.
 13. Member of University level E-Learning Task force – 2005.
 14. Organized a workshop on *E-Tools for Teaching and Learning* to Faculty of Engineering faculty members, February 2006.
 15. Member of Organizing committee for the 2005 Western Canada Fuel Cell Symposium.
 16. Associate Chair for Research, since July 2005-August 2006.
 17. Editor, The Canadian Journal of Chemical Engineering, Jan 2005-Dec 2009.
 18. Member of Canadian organizing committee for CHEMCON 2006, Ankleshwar, India, December 27-30, 2006.
 19. Vice-Chair of Graduate council of The Petroelum Instittue, Aug 2008-
 20. Chair of the selection committee for PetGeoSci program – 2008.
 21. Vice-chair of conference ICCHMT'09 – Guangzhou – May 18-21, 2009.
 22. Memer of Scientific committee ICTEA2009– Abu Dhabi – Jan 12-14, 2009.
 23. Member, Orgonizing committee for the CFD symposium during 8th World Congress of Chemical Engineering, Aug 2009.
 24. Chair of selection committee for the Director of Pet Geo Sci and IT Director positions at the Petroleum Institute, 2009.
 25. NSF – CBET Panel, “Multiphase flows,” – April 29, 2011.
 26. NSF – IIP Panel, “Reaction Engineering and Technology,” – Washington, Aug 30, 2011.
 27. NSF – IIP Panel, “Reneable energy resources”- Washington, Feb 1, 2012.
 28. NSF-IIP Panel, “Separations Processes” – Washington, Sept 10, 2013.
 29. Scholarship panel for National Academies of Sciences and Engineering, Beckmen center, UC Irvine campus – March 2012 - continuing
 30. Chair of selection committee for faculty recruitment at LSU, Dec'11-Mar'12, Dec'12-Mar'13.
 31. Member of Discovery Grant evaluation panel for the Natural Sciences and Engineering Research Concl (NSERC) of Canada, Feb 2013-2016.
 32. Member of the steering committee of MEMPHIS at Imperial College London, 2013-
 33. Member of LSU Council on Research, 2012-2016 (Chair in 2015-16)
 34. NSF-IIP Panel, “Wastewater Treatment” – Washington, Aug 24, 2014.
 35. Member of Civ Eng Faculty selection committee, 2015-16.

RESEARCH GRANTS & CONTRACTS

Granting body	Period	Project Title	Amount each year
NSERC operating	Apr'83-Mar'84	Computational Fluid Mechanics	\$14,000
NSERC operating	Apr'84-Mar'87	Computational Fluid Mechanics	\$18,740 \$18,740 \$18,740
NSERC operating	Apr '87-Mar'90	Computational Fluid Mechanics	\$25,783 \$25,783 \$25,783
NSERC operating	Apr'90-Mar'93	Computational Fluid Mechanics	\$27,000 \$27,000 \$27,000
NSERC operating	Apr'93-Mar'96	Computational Fluid Mechanics	\$40,000 \$40,000 \$40,000
NSERC Research Grant	Apr'96-Mar'01	Multiphase flows	\$50,936 \$50,936 \$50,936 \$50,936 \$50,936
NSERC Discovery Grant	Apr'01-Mar'06	Multiphase flows	\$50,936 \$50,936 \$50,936 \$50,936 \$50,936
NSERC Discovery Grant	Apr'06-Mar'11	Multiphase flows	\$49,000 \$49,000 \$49,000 \$49,000 \$49,000
NSERC Strategic Projects Grant	Nov'83-Oct '85	Inclined Plate Settlers (w/ JHM)	\$45,850 \$45,850 \$45,850
NSERC equipment grant	Apr'85	Laser Doppler Anemometer	\$63,060
AOSTRA contract	Sep'86-Aug'88	Enhanced Gravity Separation (w/ JHM)	\$54,480 \$54,480
CRF operating	Sep'90-Apr'91	Symbolic computation	\$9000
NSERC equipment	Apr'91	LDA accessories & flow visualization	\$66,800
AOSTRA contract	Sep'93-Aug'96	Colloidal dispersions (w/JHM)	\$66,000 \$66,000 \$66,000
NSERC equipment grant	Apr'94	Upgrade LDA to 2-component sys (w/JHM)	\$92,000
NSERC Strategic Projects Grant	Nov'93-Oct '96	Simulation of oil sands extraction and upgrading processes.	\$70,000 \$70,000 \$70,000

ESTAC research contract	Nov'95-Oct'98	Understanding & Improving Packed Column Performance in Distillation and Absorption	\$104,780 104,780 104,780
Syncrude research contract	June'98-May'01	CFD Modelling and experimental validation of the primary separation vessel (w/JHM)	\$50,000 \$50,000 \$50,000
UofA-IIPP	Nov'98-Dec'00	CFD Modelling and experimental validation of the primary separation vessel	\$77,087
NSERC-IOR	Nov'98-Oct '01	CFD Modelling and experimental validation of the primary separation vessel (w/JHM)	\$50,000 \$50,000 \$50,000
NSERC Strategic Projects Grant	Nov'98-Oct '01	Novel Structured packing assembly for distillation (w/KTC)	\$79,000 \$79,000 \$79,000
ARC contract	Nov'98-Oct '01	Novel Structured packing assembly for distillation (w/KTC)	\$25,000 \$25,000 \$25,000
AOSTRA contract	Nov'98-Oct '01	Effect of fines on bitumen recovery (w/JHM)	\$73,900 \$73,000 \$73,000
COURSE contract	Nov'99-Oct '01	Solids distribution in hydrotransport	\$53,500 \$53,500
NSERC Strategic Projects Grant	Nov'99-Oct '02	Three-phase transport in pipelines (w/JHM)	\$65,000 \$65,000 \$65,000
COURSE contract	Oct'01-Sept'04	Investigation of the erosion-corrosion of pipelines caused by slurry flow (w/Minev/Luo)	\$85,000 \$57,600 \$57,500
Syncrude	Oct'01-Sept'04	Investigation of the erosion-corrosion of pipelines caused by slurry flow (w/Minev/Luo)	\$15,000 \$15,000 \$15,000
NSERC CRD	Oct'01-Sept'04	Investigation of the erosion-corrosion of pipelines caused by slurry flow (w/Minev/Luo)	\$22,750 \$22,750 \$22,750
NSERC Strategic Projects Grant	Nov'01-Oct'04	Development and validation of CFD models for Structured packing in distillation	\$81,000 \$81,000 \$81,000
Koch-Glitsch contract	Nov'01-Oct'04	Development and validation of CFD models for Structured packing in distillation	\$15,000 \$15,000 \$15,000
NSERC Equipment grant	Apr'01	Signal processor upgrade for LDA to handle multiphase flow (w/JHM)	\$77,633
DuPont Canada	Dec'01-Nov'05	Transport phenomena in polymer extrusion (w/US)	\$39,000 \$39,000 \$39,000 \$39,000
NSERC CRD	Jul'02-Jun'06	Transport phenomena in polymer extrusion (w/US)	\$67,087 \$67,087 \$67,087 \$67,087
NSERC EQ	Apr'02	Computational server	\$65,648

DSTO, Australia	May 2003-	CFD models for exterior ballistics	\$50,000
NSERC Strategic Projects Grant	Nov'03-	CFD modelling of SOFC fuel cells	\$90,000
			\$90,000
			\$90,000
NSERC EQ	Apr'05	Replacement of Laser tube for the LDA	\$32,535
Syncrude contract	Jan'05-Dec'07	Bubble size distribution of air in hydrotransport pipelines (w/JHM/SS)	\$50,000
			\$50,000
			\$50,000
NSERC CRD	Jan'05-Dec'07	Bubble size distribution of air in hydrotransport pipelines (w/JHM/SS)	\$59,000
			\$46,000
			\$45,000
WCFCI	Jan'06-Dec'06	Fuel cell modelling	\$65,000
NSERC Strategic Projects grant	Nov'04-Oct'07	Material Development and Modelling of progressive cavity pumps for crude oil extraction	\$79,000
			\$79,000
			\$71,000
Total			\$5,456,413
At Louisiana State University			
Start-up Grant	Aug'09-	Formation of Multiphase modeling group	\$600,000
USDA-AFRI	Sep'11-	A Regional program for production of multiple agricultural feed stocks and processing to Biofuels and Biobased chemicals (Education)	\$245,698
			\$245,698
			\$245,698
			\$245,698
			\$245,698
BP E&P Inc	Oct'11-Dec'14	The Science and Technology of Dispersants as Relevant to Deep-Sea Hydrocarbon Releases	\$76,118
			\$76,118
			\$76,118
Borealis LLC	Dec'12-Dec'13	Hydrodynamic modelling of polymerization loop reactor	\$284,944+ \$150,000
ARPA-E	Jan'14-Dec'16	Bioreactor Design Subcontract from LANZA Tec	\$200,000 per year
INTEL-IPCC Project (Drs. Liu, Lupo, Thompson, Tyagi, Nandakumar)	Apr'14-Mar'16	Next-Generation Simulation Capabilities for Particle Transport in Porous Media Relevant to Oil & Gas Industry Applications	\$75,000 Per year

GRADUATE STUDENTS & RESEARCH STAFF SUPERVISED

No.	Period	Name	Degree or position Thesis title or Research topic Current affiliation
1.	Sep'83- Jul'85	Mrs. S. Walgama	M. Sc. Student <i>Non-Newtonian fluid in curved ducts</i> Faculty member in Univ of Peridiniya, Sri Lanka
2.	May'83- Mar'87	Dr. D. Hin-Sum Law	PDF (joint with Prof. Masliyah) <i>Study of Gravity Settling</i> Research Engineering at ARC, Edmonton
3.	Jun'84- Jul'85	Mr. L. Fung	Research staff, (joint with Prof. Masliyah) <i>Bifurcation phenomena in heated ducts</i> Research Engineering at CMG, Calgary
4.	Jul'84- Dec'87	Dr. S. Ravi Sankar	PDF <i>Bifurcation phenomena in curved ducts</i> Research Engineering (DSTO, Australia)
5.	Jan'84- Mar'86	Mr. R. Mac Taggart	Research staff (joint with Prof. Masliyah) <i>Study of Gravity Settling</i> Research Engineering, NOVA
6.	May'85- Nov'87	Mr. F. Bataille	M. Sc. Student Minimum reflux in Distillation column Unknown
7.	Sep'85- Sep'87	Mr. R. Bondy	M. Sc. Student (joint with Prof. Mather) <i>Multiplicity in separation processes</i> Research Engineering SimSci, Calgary
8.	Feb'87- Aug'88	Dr. H. Nasr-El-Din	PDF (joint with Prof. Masliyah) <i>Study of Gravity Settling</i> Research Engineer, ARAMCO, Saudi Arabia
9.	Sep'87- Aug'92	Mr. D. Ryland	Ph. D. student <i>Bifurcation phenomena in Hele-Shaw cell</i> Research Engineering, AECL, Canada
10.	Sep'87- Jun'91	Mr. B. Bara	Ph. D. student (joint with Prof. Masliyah) <i>Bifurcation phenomena in Curved Ducts</i> Research Engineer, Syncrude Canada
11.	Jul'89- Jun'91	Dr. H. Chen	PDF, joint with Prof. W. H. Finlay <i>Coupled effects of buoyancy and Coriolis force</i> Unknown
12.	Jan'90- Jun'94	Mr. P. Mees	Ph. D. student, joint with Prof. Masliyah <i>Oscillatory flow in curved ducts</i> Unknown
13.	Sep'91- Nov'97	Mr. K. Dorma	Ph. D. student <i>CFD modeling of sedimentation</i> Unknown
14.	Sep'91- Sep'92	Dr. M. Selmi	PDF, joint with Prof. W. H. Finlay <i>Coupled effects of buoyancy and Coriolis force</i> Faculty at Univ of Qatar
15.	Apr'91- Feb'94	Mr. E. Choi	Ph. D. student joint with Prof. Chakma at U of C <i>Bifurcation phenomena in porous media</i> Research Engineer at a steel plant in S. Korea
16.	Sep'92- Apr'95	Mr. Ravi Sharma	M. Sc. Student <i>Bifurcation phenomena in rotating ducts</i> Unknown (somewhere in USA)
17.	Jan'94- Jun'95	Dr. B. Lowry	Killam PDF <i>Interfacial phenomena</i> Faculty at UNB, Canada
18.	Feb'94- Jan'95	Dr. G. Goyal	PDF Sedimentation Unknown
19.	Mar'94- Dec'97	Mr. S. Basu	PDF, (joint with Prof. Masliyah) <i>Bitumen extraction</i> Faculty at IIT
20.	May'94- Jan'96	Mr. B. Mehta	M.Sc. student (joint with Prof. K. T. Chuang) Sieve tray modelling An Investment firm

21.	Jun'94- Aug'95	Mr. N. Alleborn	Visiting student from Germany <i>Flow in a sudden expansion</i> Faculty at Uni-Erlangen
22.	Dec'94- Mar'95	Dr. L. Wong	Post doctoral fellow <i>Flow in rotating ducts</i> Faculty in Hong Kong University
23.	Sep '94- Oct '99	Mr. F. Yin	Ph. D. student (joint with Prof. K. T. Chuang) CFD modelling of packed column Faculty at Keyano College
24.	Mar'95- Nov'96	Mr. H. Minhas	Research Assistant <i>Sedimentation</i> Unknown
25.	Mar'95- Dec'95	Mr. R. Butts	Research Assistant <i>Sedimentation</i> Unknown
26.	Sept'94- Aug'97	Mr. R. Leung	M.Sc. (w/ Drs. Shah, Rink) <i>Modelling of a furnace</i> Unknown
27.	Sept'92- Mar'97	Dr. S. Lakshminarayanan	Ph.D. student (w/ Dr. Shah) <i>System modelling and identification</i> Faculty at National University of Singapore
28.	Feb'96- Feb'97	Dr. Ulrich Lange	Lynen Fellow from Germany <i>Mass transfer with reaction</i> Glass company in Germany
29.	May'95- Aug'96	Dr. Peter Minev	Post doctoral fellow (NSERC) <i>Bubble column dynamics</i> Faculty at UofA, Math dept
30.	Feb'96- May'98	Dr. Ming Song	Post doctoral fellow (ESTAC) <i>Packed bed modelling</i> Consulting company
31.	Sep'96- Jan'00	Mr. David Sharp	M.Sc. Student <i>Bubble column dynamics</i> FSO in the Dept of Chem & Mat Eng, UofA
32.	Mar'98- Aug'99	Dr. Z. Wang	Post doctoral fellow (ESTAC) <i>Packed bed modelling</i> ExxonMobil R & D
33.	Sep'98-	Dr. Min-Hua Wang	Post doctoral fellow (Syncrude/JHM) <i>Primary Separation Vessel/Erosion Studies</i> Corning USA
34.	Oct'99- Sept'01	Dr. F. Yin	Post doctoral fellow (NSERC Stg/KTC) Packed Bed modelling Faculty at Keyano College
35.	Jan'99- Feb'03	Ms. Diaz-Goano	Ph.D. student (w/ Minev) <i>Multiphase Flow Simulation</i> Faculty in the Dept of Chem & Mat Eng, UofA
36.	Oct'99- Dec'01	Dr. Gang Jia	PDF (w/ Minev) Direct numerical simulation Unknown
37.	May'99-	Dr. Xiaoming Wen	PDF (NSERC Stg/KTC) Packed Bed modelling
38.	Nov'99- May'03	Dr. Mahbubur Razzaque	PDF (NSERC Stg/KHM) Slurry flow Faculty at Bangladesh University
39.	May'99- Mar'02	Dr. Weixing Wang	PDF (AOSTRA /JHM/ZU) Bitumen attachment to air bubbles Unknown
40.	May 99- May 00	Dr. N. Yan	PDF (AOSTRA w/JHM) <i>Emulsion studies</i> Unknown
41.	May'00- Nov'02	Dr. G. Gu	PDF (AOSTRA w/JHM) <i>Emulsion studies</i> Currently at UofA as Research Assoc with JHM
42.	Sep'99- Aug'02	Mr. Dronamraju Raghu	M. Sc. (w/SS) <i>Packed column design</i> Research Engineer at Bantrel, Edmonton

43.	Sep'99- Apr'04	Mr. G. Getye	M. Sc. Student (w/KTC) <i>Sieve tray modelling</i> Returned to Africa
44.	Sep'99- Aug'01	Mr. M. Luthra	M. Sc. Student (w/ JHM) <i>Bitumen Extraction Unit</i> Shell in Edmonton
45.	Mar'99- Aug'00	C. Sun	PDF (w/KTC) <i>Packed column modelling</i> Unknown
46.	Aug'00- Nov'02	Dr. Yaojun Lu	PDF (w/JHM) <i>CFD modelling of settling</i> FMT Inc (USA)
47.	Sep'00- Oct'05	Mr. Hongbing Chen	Ph. D. Student (w/UT) <i>Polymer processing</i> Research Engineer at Goodyear, USA
48.	Sep'00-	Mr. AKM Monjur Murshed	Ph. D. Student (w/BH) <i>Model predictive control</i> Shell at Sarnia
49.	Sep'01-	Mr. D. Monder	Ph. D. Student (w/KTC) <i>Modelling of H2S fuelled SOFC</i> PDF @ Queens Univ
50.	Feb'01- Nov'03	Dr. Dalton Harvie	PDF (Alberta Ingenuity) <i>CFD modelling of sedimentation</i> Faculty at Melbourne, Australia
51.	Sep'01- May'05	Dr. Tong Chen	PDF (w/ PM) <i>Direct numerical simulation of bubble flows</i> Research Engineer at CMG, Calgary
52.	Sep'02- Aug'07	Mr. Veeramani	Ph. D. Student (w/ PM) <i>Direct numerical simulation of particulate flows</i> Researcher at AT Plastics
53.	Sep'02- Dec'07	Ms. Yun Bai	Ph. D. (w/UT) <i>Mixing in polymer</i> Schlumberger, Edmonton
54.	Sep'02- Apr'04	Mr. S. Sankar	M. Sc. (w/JL/PM) <i>Erosion/Corrosion studies</i> Local consulting company
55.	Sep'03- Oct'06	Ms. Divya Kumar	M. Sc. Student (w/SS) <i>Slurry flows</i> SNC Lavalin
56.	Sep'03- Jun'06	Mrs. Sharmeen Akhtar	M. Sc. (w/KTC) <i>CFD modelling of structured packing</i>
57.	Sep'04- Apr'10	Mr. Saeid Amiri	Ph D student (w/REH) <i>Modelling of micro fuel cells</i> Housewife
58.	Sep'04- Nov'10	Mr. Mranal Jain	Ph D Student (w/AY) <i>Microfluidics</i> continuing
59.	Sep'04- Feb'10	Mr. Ali Abbaspour	Ph D Student (w/KTC) <i>Micro modelling of electrodes in fuel cells</i> continuing
60.	Sep'04- Sep'07	Dr. Yarub Al-Jahmany	PDF <i>Flow past objects</i> Faculty at Jordon U Sci & Tech
61.	Jan'05- Dec'07	Dr. K. Alemaskin	PDF (w/US) <i>Progressive cavity pumps</i> continuing
62.	Apr'05- Dec'07	Dr. K. Ekambara	PDF (w/SS) <i>Three phase flow modelling</i> continuing
63.	Sep'05- Dec'10	Mr. Srinath Madhavan	PhD student (w/PM) <i>Direct numerical simulation of multiphase flows</i> continuing
65.	Sep'06- May'09	Mr. K. Mittal	M.Sc. <i>CFD simulation of hydrocyclones</i>
66.	Jan'07- Dec'08	Dr. Shi Jin	PDF (w/PM) <i>Parallel algorithms for multiphase flows.</i>

67.	Oct'08-Jul'09	Dr. A. Berrouk	PDF, Dispersed phase modelling using CFD.
69.	Jun'05-Jun'09	Mr. Rupesh Reddy	PhD at UICT Multiphase flows-Drag laws by DNS At present at National Oil Well (Houston)
70.	Sep'09-Dec'14	Mr. Yuehao Li	PhD at LSU (w/Challa Kumar) – Micro fluidics
71.	Sep'09-Feb'14	Mr. Tom Scherr	PhD at LSU (w/Monroe) – Micro fluidics (PDF at Vanderbilt)
72.	Sep'10-Sep'15	Mr. Abhijit Rao	PhD at LSU – oil spill modelling
73.	Sep'10-Oct'15	Mr. Oladapo Ayeni	PhD at LSU – Multiphase flows
74.	Sep'11-	Mr. Gongqiang He	PhD at LSU (w/Kochergin) – renewable energy
75.	Sep'12-	Mr. Chenguang Zhang	PhD at LSU – Granular flows
76.	Sep'12-	Mr. Aaron Harrington	PhD at LSU (w/ Tyagi) – downhole heaters
77.	Sept'13-	Mr. Mutharasu Lalitha Chockalingam	PhD at LSU – Bubble columns
78.	Sept'13	Mr. Jieliu Yu	PhD at LSU (w/Tyagi) – Granular flows
79.	Sept'14	Mr. Daniel Oliviera	PhD at LSU – DNS of particulate flows
80.	Sept'14	Mr. John Ding	PhD at LSU (w/Tyagi) – kerogen
81.	Mar'10-Oct'14-	Dr. Rupesh Reddy	PDF at LSU – at present with National Oil Well
82.	Aug'10-Aug'12	Dr. Chunliang Wu	PDF at LSU – at present with ANSYS
83.	Jan'11-May'13	Dr. Mranal Jain	PDF at LSU – at present with COMSOL
84.	Dec'10-Dec'11	Dr. Yu	PDF at LSU – at present with BIT, Beijing
85.	Feb'13-	Dr. Shivkumar Bale	PDF at LSU (USDA project)
86.	Jan'14-Feb'15	Dr. Yongtin Ma	PDF at LSU
87.	May'14-	Dr. Mayur Sathe	PDF at LSU (LanzaTech Project)
88.	Jan'15-	Dr. Yuehao Li	PDF at LSU (Borealis/Albemarle projects)
89.	Sep'10-Apr'14	Ms. Shelby Pursley	Undergraduate – CFLR fellowship
90.	Sep'12-	Mr. Allen W Huang	Undergraduate – CFLR fellowship
91.	Sept'13-	Mr. Jonathan A Gardner	Undergraduate – CFLR fellowship

PUBLICATIONS IN REFEREED JOURNALS

(Bold letters indicate graduate students)

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CONFERENCE PRESENTATIONS

- C1. Rao A, Sathe M, Nandakumar K*, “Ambit of multiphase CFD in oil spill related scenarios “, 2015 CSChE Conference, , Oct 4-7, 2015, Calgary, Canada.
- C2. Ayeni O , C. Zhang, Nandakumar K* , Study of flow pattern of granular materials - Simulations and Experiments”, 2015 CSChE Conference, , Oct 4-7, 2015, Calgary, Canada.
- C3. Li Y, Nandakumar K*, “CFD investigations of particle segregation and dispersion mechanisms inside a polyolefin 8-leg loop reactor of industrial scale,” 2015 CSChE Conference, , Oct 4-7, 2015, Calgary, Canada.
- C4. Nandakumar K*, “Impact of technology on education & design,” 2015 CSChE Conference, , Oct 4-7, 2015, Calgary, Canada. **[Invited Keynote lecture]**
- C5. He G, Nandakumar K*, “Experimental and CFD investigation of a novel plate and frame ion-exchanger with fractal distributor,” 2015 CSChE Conference, , Oct 4-7, 2015, Calgary, Canada.
- C6. Yuehao Li*, K. Nandakumar and Rupesh K. Reddy, “CFD Investigations of Particle Segregation and Dispersion Mechanisms inside a Polyolefin 8-Leg Loop Reactor of Industrial Scale,” AIChE Annual Meeting in Salt Lake City, Nov 8-13, 2015.
- C7. Gongqiang He*, Kishore K. Kar and K. Nandakumar, “CFD Investigations and Optimization of a Novel Dynamic Oil Water Separator”, AIChE Annual Meeting in Salt Lake City, Nov 8-13, 2015.
- C8. K. Nandakumar*, “Enabling Process Innovation through Computation”, CFD Conference, Melbourne, Australia, Dec 7-9. 2015.
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- C21. **Y. Li***, K. Nandakumar, M. Jain, “Numerical Study of the Controlled Droplet Breakup by Static Electric Fields inside a Microfluidic Flow-focusing Device”, COMSOL Conference 2013, Boston, Oct 9-11, 2013.
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- C37. Mranal Jain and Krishnaswamy Nandakumar, "Enhanced Electrokinetic Micromixing by Optimal Patterning of Heterogeneous Surface Charge," 2011 Annual AIChE Meeting, Minnesota, Oct 16-21, 2011.
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- C39. Nandakumar, K. *, "Multiphase flow modeling: A tool to aid in scale up of processes," 77th Annual Meeting of the Southeastern Section of the APS, Baton Rouge, Oct 22, 2010. (invited presentation)
- C40. Rupesh K. Reddy, Peter D. Minev, Jyeshtharaj B. Joshi, and **K. Nandakumar***, "Direct Numerical Investigation of a Sphere Interaction with Neighbouring Particles and Wall," 2010 Annual AIChE Meeting, Salt Lake City, Utah, Nov 7-12, 2010.
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- C163. Tomcej, R. A. and K. Nandakumar, Multiple Solutions in Mixed Convection Flow of a Power Law Fluid in Horizontal Ducts, presented at the *34th Canadian Society for Chemical Engineering Conference*, Halifax, October 1984. (abstract only)
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- M1. Oladapo Ayeni, Chunliang Wu, K. Nandakumar and J. B. Joshi, "Sedimentation of Particle Swarms at low and moderate Reynolds numbers using DPM-CFD," submitted to *Phys Fluids* (2014).
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- M3. M. Selmi and K. Nandakumar, "Further Contributions to mixed convection flow in curved ducts," (to be communicated).

Presentations to Industry, Universities, National Labs

Over 35 invited presentations to industries, Universities and Government labs around the world prior to 2006.

- P1. Nandakumar, K. Enabling Process Innovation through Computation, Iowa State U, Mar 9, 2016
- P2. Nandakumar, K. Enabling Process Innovation through Computation, Tulane U, Feb 26, 2016.
- P3. Nandakumar, K. Enabling Process Innovation through Computation, ULL, Feb 19, 2016.
- P4. Nandakumar, K. "Discrete Particle Modelling", Schlumberger, Houston, Nov 2015.
- P5. Nandakumar, K. "EPIC-Enabling Process Innovation through Computation", TOTAL, Process Engineering Group workshop, Brussels, Oct 2015.
- P6. Nandakumar, K. "EPIC-Enabling Process Innovation through Computation", Huntsman, Brussels, Oct 2015.
- P7. Nandakumar, K., "Impact of computers on education and technology", Shandong Academy of Sciences, Sep 2015.
- P8. Nandakumar, K. "EPIC-Enabling Process Innovation through Computation", Shandong Academy of Sciences, Sep 2015.
- P9. Nandakumar, K., "EPIC-Enabling Process Innovation through Computation", Beijing Institute of Technology, Sep 2015.
- P10. Nandakumar, K. "EPIC- Enabling Process Innovation through Computation", University College London, UK, April 9, 2014.
- P11. Nandakumar, K. "EPIC- Enabling Process Innovation through Computation", Syncrude Canada, Edmonton, CANADA, March 12, 2014.
- P12. Nandakumar, K. "EPIC- Enabling Process Innovation through Computation", Vellure Institute of Technology, Vellore, India, December 6, 2013.

- P13. Nandakumar, K, "EPIC- Enabling Process Innovation through Computation", Albemarle, Baton Rouge, November 22, 2013.
- P14. Nandakumar, K, "EPIC- Enabling Process Innovation through Computation", Dow Chemicals, Freeport, Texas, October 31, 2013.
- P15. Nandakumar, K, "EPIC- Enabling Process Innovation through Computation", Rubicon-Huntsmann, Geisemer, LA, October 22, 2013.
- P16. Nandakumar, K, "Advanced Computer Models of Multiphase Processes" CCT at LSU, Mar 15, 2013.
- P17. Nandakumar, K, "Advanced Computer Models of Multiphase Processes" Indian Institute of Technology at Madras, Chennai, Jan 3, 2013.
- P18. Nandakumar, K, "Advanced Computer Models of Multiphase Processes at Appropriate Scales" University of Calgary, Zandmer Distinguished Lecturer Series, Nov 22, 2012.
- P19. Nandakumar, K, "Impact of Technology on Education" University of Calgary, Zandmer Distinguished Lecturer Series, Nov 23, 2012.
- P20. Nandakumar, K, "Advanced Computer Models of Multiphase Processes at Appropriate Scales" The Petroleum Institute, Abu Dhabi, Nov6, 2012.
- P21. Nandakumar, K, "Impact of Technology on Education" The Petroleum Institute, Abu Dhabi, Nov 5, 2012.
- P22. Nandakumar, K. "Advanced Computer Models of Multiphase Processes at Appropriate Scales" *Applied Mathematic Institute*, Univ of Alberta, Edmonton Canada, March 2, 2012.
- P23. Tyagi, M. and K. Nandakumar, "Complex Multiphase Flow in Diverse Industry Processes An industry-university consortium proposal" SPE DELTA Technical Focus Group Meeting, Feb 28, 2012, New Orleans.
- P24. Nandakumar, K. "Multiphase flow modeling: Challenges and Opportunities ", University of Ottawa, Nov, 25, 2011.
- P25. Nandakumar, K. "Multiphase flow modeling: Challenges and Opportunities ", Texas A & M, Qatar campus, Nov, 16, 2011.
- P26. Nandakumar, K, "Some thoughts on the evolution of ChE education and the impact of technology on higher education" Texas A & M, Qatar campus, Nov 15, 2011.
- P27. Nandakumar, K., Past, Present and Future of Chemical Process Modelling and simulation, Baton Rouge Local AIChE section, Sept 2011.
- P28. Nandakumar, K. Multiphase flow models for Chemical Processes: Challenges and Opportunities, ANSYS Regional Conference, Houston, August 2011.
- P29. Nandakumar, K. Multiphase flow models for Chemical Processes: Challenges and Opportunities," Univesity of Houston, Houston, Aug 26, 2011.
- P30. Nandakumar, K., "Multiphase flow modeling: Challenges and Opportunities ", Queens University, Kinsgton, June 6, 2011.
- P31. Nandakumar, K., "Effective use Technology in the class room", Queens University, Kinsgton, June 6, 2011
- P32. Nandakumar, L, "Multiphase Computational Fluid Dynamics - A tool to aid in scale up of chemical processes", South West Research Institute, San Antonio, Mar. 22, 2010.
- P33. Nandakumar, L, "Multiphase Computational Fluid Dynamics - A tool to aid in scale up of chemical processes", Tsinghua University, Beijing, June. 2, 2010.
- P34. Nandakumar, L, "Multiphase Computational Fluid Dynamics - A tool to aid in scale up of chemical processes", SunYat Sen University, Guangzhou, June. 5, 2010.
- P35. Nandakumar, K, "Can CFD shed light on multiphase flows found in chemical processes?", National Research Council, Ottawa, Jan21, 2008.
- P36. Nandakumar, K., "Multiphase Computational Fluid Dynamics: A New Tool to Aid in Scale up of Chemical Processes", Invited seminar as part of Leaders in Mechanical Engineering lecture series at University of Maryland, Sep 19, 2008.
- P37. Nandakumar, K., "Understanding Multiphase flows through Computational Fluid Dynamics", University of Saskatchewan, Jan 17, 2007.
- P38. Nandakumar, K., "CFD as a tool to address scale up issues in heavy oil processing", Kuwait World Energy & Chemicals Exhibition and Symposium, Oct 22-25, 2007, Kuwait.
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