

4.4 DEPARTMENT OF CHEMICAL ENGINEERING

4.4.1 Introduction:

The Department of Chemical Engineering was established in 1959. The department has 28 faculty members who carry out research in state of the art areas. The focus of the research is geared towards: energy, materials and environment. Faculty work towards analyzing these systems by understanding their behavior at the molecular level as well as using a systems approach.

4.4.2 Academic Programmes:

New Courses introduced:

Sl. No.	Course No.	Title
1.	CH 5011	Colloids and Surfaces

Students on roll:

Programme	I year	II Year	III Year	IV Year	V Year & others	Total
B.Tech.	69	75	61	52	3	260
Dual Degree	18	20	14	14	19	85
M.Tech.	34	33	2	0	0	69
M.S.	23	9	7	6	1	46
Ph.D.	23	19	11	9	4	66
Total	167	156	95	81	27	526

Endowment prize instituted:

- Prof. R. Nagarajan has instituted prizes for the best girl students in all disciplines of IIT Madras.
- Prof. M. Ramanujam endowment prize was instituted for (i) best performance in course on Mechanical Operations and (ii) best M.Tech. / D.D. thesis in the area of Particle Technology.
- Smt. D.L. Saraswathi Memorial Prize was instituted for the best M.Tech. / D.D. thesis in the area of Environmental Engineering / Reaction Engineering.
- Prof. R. Nagarajan has instituted an award for the student with best academic record in 1st and 2nd semesters of M.Tech program in Physics Department – Solid State Technology.

Names of Student/Scholar who attended Conference/ /Seminar and Symposia Abroad/India:

Sl. No.	Name of the Student/Scholar	Roll No.	Name of the Conference/ Seminar / Symposia / Workshop	Date and Venue	Financial Assistance from
Abroad					
1	M. Kranthi Kumar	CH09D001	Piero Lunghi conference and exhibition	13 – 15.12.2011 Rome, Italy	IIT Madras
2	M. Nabil	CH09D004	17 th Nordic Process Control Workshop	25 – 27.1.2012 DTU, Lyngby, Denmark	The Research council of Norway
3	Dipin S. Pillai	CH10S010	2 nd Indo German Workshop on Advanced Reaction and Separation Processes	19 – 22.2.2012 Bad Herrenalb, Germany	IIT Madras
India					
1	M. Sudhakar	CH08D013	Advances in control and optimization of dynamical systems (ACODS)	16 – 18.2.2012 IISc Bangalore	IIT Madras
2	M. Kranthi Kumar	CH09D001	National Seminar on Advanced Materials: Processing and Applications (NSAMPA -2012)	29 –30.3.2012 IISc Bangalore	IIT Madras

3	G. Keerthiga	CH09D007	Chemference 2011	23 – 24.9.2011 IISc Bangalore	Nil
			15 th National Workshop on Role of materials in catalysis	11 – 13.12.2011	Nil
			ACEPS – 2012	5 – 8.1.2012	Nil
			CIGE – 2012	9 – 11.2.2012 Annamalai University	Nil
3	K.S. Rajmohan	CH10D003	National Conference on Chemical Engineering Processes In Environmental Applications (CEPEA)	29 – 30.3.2012 AC Tech, Anna University	IIT Madras
			Chemference 2011	23 – 24.9.2011 IISc Bangalore	Nil
4	K. Jagadeeshwar	CH11D004	SERC school and sixth national symposium on "Rheology of complex fluids"	3 – 7.1.2012 IIT Guwahati	IIT Madras
			HEALTH CARE INDIA 2012	20 – 23.2.2012 Delhi	IIT Madras
5	R. Piramuthu Raja Ashok	CH11D007	SERC school and sixth national symposium on "Rheology of complex fluids"	3 – 7.1.2012 IIT Guwahati	IIT Madras
6	Vaishakh Nair	CH11D012	RENERGY 2012 International Conference and Exhibition	12 – 13.3.2012 Chennai	IIT Madras
7	Dugyala Venkateshwar Rao	CH11D015	SERC school and sixth national symposium on "Rheology of complex fluids"	3 – 7.1.2012 IIT Guwahati	IIT Madras
8	Shekhar Kulkarni	CH11S019	RENERGY 2012 International Conference and Exhibition	12 --13.3.2012	IIT Madras
9	Lalit Musmade	CH11S021	RENERGY 2012 International Conference and Exhibition	12 – 13.3.2012 Chennai	IIT Madras

Names of students/scholars who won outside prizes and awards:

SI.No	Name of the Student/Scholar	Roll No.	Name of Prize	Prize awarded by
1	B. Ambedkar	CH07D003	Springer Thesis Prize	Springer Publication
2	M. Kranthi Kumar	CH09D001	2 nd Best Paper Award (Oral)	IISc Bangalore
3	G. Keerthiga	CH09D007	2 nd Prize for Best Poster Presentation award	IISc Bangalore
4	K.S. Rajmohan	CH10D003	Best Paper (oral presentation) Prize	Anna University

4.4.3 Faculty and their activities:

Faculty:

Name and Qualifications	Major area of specialization
Professor:	
Dr. S. Pushpavanam	[Head] Modeling and simulation, non linear dynamics, flow visualization
Dr. Abhijit Deshpande	Rheology of complex fluids, polymers and polymeric composites Processing flow visualization

Dr. A. R. Balakrishnan	Transport Processes, Energy Conservation
Dr. M. Chidambaram	Process Control
Dr. A. Kannan	Mathematical Modeling, Simulation and Optimization of Chemical processes
Dr. K. Krishnaiah	Chemical reactor analysis and design fluidization
Dr. R. Nagarajan	Particle Science & Technology , Ultrasonic Processing Statistical Quality Control
Dr. T. Panda	Bioprocess Optimization, bioprocess technology and enzyme design
Dr. Raghunathan Rengasamy	Process Systems Engineering; Fuel Cells; Computational Discrete Microfluidics
Dr. V. S. Ramachandra Rao	Advanced Control strategies, Neuro Fuzzy Control
Dr. R. Ravi	Applied statistical mechanics, foundations of thermodynamics and mechanics, process dynamics and control
Dr. P.S.T. Sai	Chemical reactor analysis and design
Dr. Shankar Narasimhan	Process design, data mining, fault diagnosis
Dr. Sreenivas Jayanti	Fuel cells, Combustion, Energy systems
Dr. T.Swaminathan	Environmental Management, Biotechnology, Membrane technology, Environmental risk assessment
Dr. Tanmay Basak	Microware application, mathematical modeling and simulation
Associate Professor:	
Dr. Arun K. Tangirala	System identification and parameter estimation
Dr. Preeti Aghalayam	Chemical Reaction Engineering,
Dr. S. Ramanathan	Electrochemistry, Semiconductor Processing, Chemical Reaction Engineering
Dr. Susy Varughese	Physics & mechanics of polymeric materials, polymeric nano composites
Dr. Upendra Natarajan	Polymer Science & Engineering, Molecular simulation, statistical thermodynamics of complex fluids, nanostructured hybrid composite materials.
Assistant Professor:	
Dr. M.G. Basavaraja	Directed assembly of colloids, Microstructure and rheology of colloids, surfactants, polymer and their mixtures, Interfacial rheology, Ionic liquids, Particulate gels
Dr. Ethayaraja Mani	Molecular simulations, self-assembly, mathematical modeling
Dr. Niket S. Kaisare	Microreactor Technology, Multiscale modeling , Process control, Fuel Processing, Fuel cells.
Dr. Raghuram Chetty	Electrocatalysis, Fuel cells, Wastewater treatment
Dr. R. Ramnarayanan	Integrated Chemical Systems, Photoelectrochemistry, Solidstate synthesis.
Dr. R. Ravikrishna	Contaminated Sediment remediation, contaminant fate and Transport, Air Pollution process and control.
Dr. T. Renganathan	Multiphase reactors, Computational Fluid Dynamics
Dr. Sridharakumar Narasimhan	Process System Engineering, optimization, Process Control, Fault diagnosis.
Scientific Officers / Engineers:	
Dr. K. Krishnamurthy	

Short-term Courses/ Workshops/ Seminars/ Symposia /Conferences organized by the faculty members:

Sl. No.	Coordinator(s)	Title	Period
Workshop:			
1	Dr. Arun K. Tangirala	NPTL Workshop on System Identification - Part I	10 – 13.8.2011
		NPTL Workshop on System Identification - Part II	4 – 6.11.2011
2	Dr. M. Chidambaram	Recent Trends in Process Control	3.3.2012
3	Dr. S. Pushpavanam	Sustainability in Water and Energy	27.12.2011
		2 nd Indo German Workshop at Germany	20 – 22.2.2012
4	Dr. Tanmay Basak	Writing Skills for Journal Publications	13.3.2012

Short-term Courses/ Workshops/ Seminars/ Symposia/ Conferences/ Training attended by the faculty members in Academic institutions and Public Sector Undertakings:

Sl. No.	Name of faculty	Title	Institution	Period
Symposia:				
1	Dr. Ethayaraja Mani	COMOFLU 2012	IIT Guwahati	6 – 9.1.2012
Conference:				
1	Dr. S. Pushpavanam	Mackie 2012	University of Heidelberg, Germany	18 – 20.5.2011
2	Dr. T. Panda	National Conference on Green Chemistry	Presidency College, Chennai	10.3.2012

Special Lectures delivered by the faculty in other Institutions:

Sl. No.	Name of faculty	Topic of Lecture	Institution	Date
1	Dr. A. Kannan	Statistical Analysis and Design of Experiments	Vel High Tech Engg. College, Avadi	18.2.2012
		Reactive Distillation	GMRIT, Srikakulam, AP	4.4.2012
		Concentration of Industrial Effluents Using Evaporators	GMRIT, Srikakulam, AP	4.4.2012
2	Dr. R. Nagarajan	Nanoparticle dispersion behavior in colloidal suspensions and composites	VIT University	18.2.2011
		Ultraclean manufacturing facilities: Design & Operation Considerations	IIT Madras (NCRAC 2011)	7 – 9.7.2011
		Basics and design of clean rooms	ASHRAE Chennai Chapter	14.10.2011
		Chemical Engineering in the 21 st Century	Arunai Engg. College, Thiruvannamalai	18.2.2012
		To judge student entries in “Solutions for Rural Tech Problems”	Guindy Engg. College	2.3.2012
3	Dr. T. Panda	BIOPROCESS OPTIMIZATION: One of the Faces of MULTIDISCIPLINARY BIOCHEMICAL ENGINEERING. Symposium on BIOCHEMICAL ENGINEERING: Innovations in Biotech Products	GITAM University, Waltair	3.2.2012
4	Dr. S. Pushpavanam	Role of Modeling in Chemical Engineering	ICAMB – 2012 Conference in VIT Vellore	12.1.2012
		Advances in Separation Processes	Gayathri Vidyaparishad, College of Engg.	14.3.2012

Visits abroad by faculty:

Sl. No.	Name of faculty	Country Visited	Date	Purpose of visit	Funding from
1	Dr. A. Kannan	Minneapolis, USA	16 – 21.10.2011	AiChE Annual Meeting	CPDA
2	Dr. K. Krishnaiah	Shanghai China	30.10.2011 – 2.11.2011	International Conference on Chemical Engg.	CPDA

3	Dr. R. Nagarajan	Chicao, IL, USA	2.5.2011	Annual Technical Meeting of the Institute of Environmental Sciences & Technology,	
		New Haven, CT, USA	12 – 13.5.2011	Spring Meeting – Graduate School Alumni Association of Yale University	
		Yale	16 – 17.5.2011	Yale Graduate School Alumni Association Executive Committee Meeting	
		New York	28 – 29.6.2011	PAN-IVY/IIT/C9 (China) / BEL (Brazil) Engineering Summit	
		Columbia University, New York, NY	30 – 31.7.2011	China- Ivy League – Brazil – IITs (CIBI) Academic Alliance Workshop	
		New York, NY	2 – 4.10.2011	PanIIT Alumni Meeting	
		France	14-18.11.2011	International Conference	
4	Dr. S. Pushpavanam	Germany	18 – 20.5.2011	Plenary talk Mackie 2012	
		Belgium	13.6.2011 – 15.7.2011	Visiting Scientist at Department of Mathematical Analysis of Ghent University	
5	Dr. Tanmay Basak	Minneapolis, USA	16 – 21.10.2011	AiChE Annual Meeting	CPDA
6	Dr. R. Ramnarayanan	USA	23.4.2011 – 4.5.2011	Conference and Research	EUFP7 and CPDA-IITM
		Singapore	26.6.2011– 2.7.2011	Conference and Research	EUFP7
		USA	6.11.2011 – 7.5.2012	Sabbatical leave	EUFP7
7	Dr. R. Ravi	Shanghai China	30.10.2011 – 2.11.2011	International Conference on Chemical Engg.	CPDA
8	Dr. T. Renganathan	Shanghai China	30.10.2011 – 2.11.2011	International Conference on Chemical Engg.	CPDA
9	Dr. Shankar Narasimhan	Greece	29.5.2011 – 1.6.2011	European Symposium on Computer Aided Process Engineering 2011	
10	Dr. Sridharakumar Narasimhan	TU Delft, Netherlands	23.5.2011	Seminar on plant friendly input design at Dept of Systems and Control	
		RWTH, Aachen, Germany	26.5.2011	Seminar on plant friendly input design at Dept of Process Systems Engineering	

Honours and Awards obtained by faculty:

Sl. No.	Name of faculty	Name of Award	Awarded by	Awarded for	Date of award
Awards:					
1	Dr. Tanmay Basak	Herdillia Award	Indian Institute of Chemical Engineers	For excellence in basic research in Chemical Engineering	September 2011

Books, Monographs authored/co-authored:

Sl. No.	Name of faculty	Title	Publisher	Author/ Co-author
Books:				
1	Dr. T. Panda	Mixing and Agitation Design: "Handbook of Food Process Design" (Book chapter 30)	Blackwell Publishing Ltd.	Siddhartha Singha and Tapobrata Panda

2	Dr. S. Pushpavanam	Introduction to Chemical Engineering	PHI Learning Private Ltd.	S. Pushpavanam
3	Dr. Tanmay Basak	Microwave Heating of Oil-Water Emulsions: Theoretical and Simulation Studies Using Galerkin FEM	LAP Lambert Academic Publishing, 2011	Sujoy Kumar Samanta, Tanmay Basak
Monographs:				
1	Dr. R. Nagarajan	Megasonic Cleaning	Elsevier	S. Awad

Journal Editorial Boards:

Sl. No.	Name of faculty	Position (Editor/Member)	Journal Name
1.	Dr. A.R. Balakrishnan	Editor	International Journal of Heat and Mass Transfer
		Editor	International Communications in Heat and Mass Transfer
2.	Dr. Shankar Narasimhan	Editorial Board Member	ICE, Advances in Chemical Engineering
		Editor	International Journal on "Advances in Engineering Sciences and Applied Mathematics (IIT M Journal)
3.	Dr. Tanmay Basak	Associate Editor	International Journal of Heat and Mass Transfer & International Communications in Heat and Mass Transfer

4.4.4 Design and Development Activities:

New facilities added or major equipment procured:

Sl.No	Name of Equipment	Value (Rs. in lakhs)
1	MINITAB Statistical Analysis Software	1,18,720
2	High Performance Liquid Chromatography	2,90,0000 Jap. Yen (Rs. 16 Lakhs)
3	AAS	25 lakhs

4.4.5 Research and Consultancy:

Sponsored Research Projects:

Sl. No.	Title	Period	Funding Agency	Amount (Rs. in lakhs)	Co-ordinators
1	Transient Modeling, Design And Control Of An Integrated Fuel Processing –fuel Cell System	01.08.2007 to 31.05.2011	IIT Madras	05.00	Dr. Niket S. Kaisare
2	Electrogenerated Chemiluminescence In Integrated Chemical Systems Using Modified Electrodes	06.06.2008 to 05.06.2011	CSIR	07.92	Dr. R. Ramnarayanan
3	Polymer-based Evanescent Wave Chemical Sensors.....	21.10.2008 to 20.10.2011	DST	33.53	Dr. R. Ramnarayanan Dr. Balaji Srinivasan (EE)
4	Renovation Of The Undergraduate Laboratory	08.08.2008 to 07.08.2011	Chevron	99.59	Head, Chem. Engg.
5	Convex Optimization	08.09.2008 to 07.09.2011	IIT Madras	05.00	Dr. Sridharakumar Narasimhan
6	Titanium Compounds Of Interest Electrochemical Titanium Production	09.02.2009 to 80.02.2012	DRDO	14.97	Dr. R. Ramnarayanan
7	Integrating Nanomaterials in Formulations	07/2009-06/2012	European Union Framework Program 7	24.40	Dr. R. Ramnarayanan.

8	Hierarchical Modelling And Transient Analysis Of Thermally Integrated Catalytic Microreactors	29.9.2008 to 28.09.2011	DST	17.00	Dr. Niket S. Kaisare Dr. Abhijit P. Deshpande
9	Ruthenium Based Electrocatalysts Supported On Carbon Nanotubes For Oxygen Reductin Reaction	17.02.2009 to 16.02.2012	IIT Madras	05.00	Dr. Raghuram Chetty
10	Development Of Non-platinum Cathode Catalysts For Direct Methanol Fuel Cells.	30.04.2009 to 29.04.2012	DST	20.36	Dr. Raghuram Chetty
11	Carbon Aerogels And Xerogels As Alternative Catalyst Support For Polymer Electrolyte....	06.07.2011 to 05.07.2013	NRSPR	08.80	Dr. Raghuram Chetty
12	Synthesis Characterization And Testing Of Integrated Photocatalytic Adsorbents (ipcas) For Water...	21.11.2011 to 20.11.2013	DST	06.46	Dr. Raghuram Chetty
13	Strengthening Of Research/post Graduate Teaching Facilities.....	30.04.2009 to 29.04.2014	DST FIST	275.0	Head, Chem. Engg.
14	Characterizing Metal Loss Defects From De-noised Radial Influx Leakage Signals	07.07.2009 to 06.07.2011	Board of Research in Nuclear Sciences	19.50	Dr. Arun K. Tangirala
15	Megasonic Cleaning	01.08.2009 to 31.07.2011	Crest Ultrasonics Corporation, USA	06.63	Dr. R. Nagarajan
16	Atomistic molecular dynamics simulation of the interaction between anionic polyelectrolytes and surfactants	09.10.2009 to 08.10.2012	DST	12.24	Dr. Upendra Natarajan
17	Rheology Of Ionic Polymers Near Gelation.	12.11.2009 to 11.11.2012	DST	37.44	Dr. Abhijit P. Deshpande
18	Center for Social Innovation & Entrepreneurship (CSIE)	1.4.2010 to 31.3.2011	The Lemelson Foundation & Batch of '84 alumni	27.44	Dr. R. Nagarajan
19	Inkjet Printing Of Conducting Polymers For Optoelectronic Devices - Processability.....	12.04.2010 to 11.04.2012	DST	19.20	Dr. Susy Varughese
20	Office of Alumni Affairs (OAA)	01.05.2010 to 31.03.2015	IIT Madras	61.69	Dr. R. Nagarajan
21	Understanding Mixing And Reaction Processes In Micro-reactors	04.03.2011 to 03.03.2013	CSIR	11.34	Dr. S. Pushpavanam
22	Eco Friendly Disposal Methods For Sanitary Napkins	16.03.2011 to 15.09.2011	RUTAG	01.00	Dr. Susy Varughese
23	Creation Of Learning Objects In Polymer Science And Engineering	25.05.2011 to 31.03.2012	MHRD	03.00	Dr. Abhijit P. Deshpande
24	The Changing risks posed by petroleum hydrocarbons in groundwater environments	Sept. 2011 to Aug.2014	Indo – Australian DST (India) – DIISR (Autralia)	40.00	Dr. Ravi Krishna Dr. Indumathi Nambi Dr. Suresh Kumar

25	Studies On Pyrolysis Of Prosopis Juliflora	20.10.2011 to 19.10.2012	RUTAG	01.00	Dr. T. Renganathan
26	Directed Self-assembly of Anisotropic Colloids at Fluid Interfaces	2011–2014	DST	55.00	Dr. M.G. Basavaraja Dr. Abhijit P. Deshpande
27	Shear Thickening in Suspensions of Model Colloidal Ellipsoids	2011–2014	IIT Madras	10.00	Dr. M.G. Basavaraja
28	Fabrication of macroporous ceramic materials using bijel templates	2011–2013	Nissan Research	08.36	Dr. M.G. Basavaraja Dr. Ravishankar Kottata
29	Characterization and modification of ceria particles for STI CMP	2011–2014	DST-NRF (Korea)	31.00	Dr. S. Ramanathan, Dr. Tanmay Basak, Dr. Jin Goo Park (Korean PI)
30	Controlled Drop Spreading And Squeeze Flow Analysis For Improved Permeability Description In...	06.02.2012 to 05.02.2015	DRDO	15.96	Dr. Abhijit P. Deshpande
31	Development Of Value Added Recycled Product Based On Polymeric Composites Used In Aerospace....	06.02.2012 to 05.02.2015	DARO	34.76	Dr. Susy Varughese
32	Feasibility Study of Natural Evaporator as Alternative to mechanical Evaporator		Directorate of Environment	09.60	Dr. Ligy Philip Dr. B.S. Murty Dr. A. Kannan Dr. Srinivasa Reddy
33	Modelling accelerated ageing and degradation in solid oxide fuel cells	01.03.2012	Indo-South Africa, DST project	63.00	Dr. T. Panda Dr. Sarit K. Das Dr. Ranjit Bauri Dr. Sreenivas Jayanti

Industrial Consultancy projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. A. Kannan	Manufacture of Hydrogen Peroxide	Asian Peroxides Ltd.	00.19
		Drying of Phosphate Slurry	Acme Metal Private Ltd.	00.15
2	Dr. S. Pushpavanam	Modeling Coal Gasification	BPCL	50.81
3	Dr. S. Ramanathan	Dynamic Light Scattering (dls) Testing Facility	Orchit Pharma	00.50
		Aas And Sem Analysis		00.85
		Measurement Of Anodic Protection Current Of Zinc Samples In Sea Water	SARG	00.67
4	Dr. T. Renganathan	Spray Drying Of Potassium Fluoride	TANF	00.55
		Dynamic Modeling Of A Fluidised Bed Gasifier	BHEL	17.02
5	Dr. P.S.T. Sai	Modeling Of Scrubber System For Alkali Removal from Flue Gas In Igcc	BHEL	02.76
		Study Of Mercury Emission And Control Options For Coal Fired Power Plants	BHEL	02.50
6	Dr. Susy Varughese	Preparation And Characterization Carbon Dioxide Separation	Bloom Energy Ltd., USA	08.70

RBIC projects:

Sl. No.	Name of faculty	Title	Industry	Amount (Rs. in lakhs)
1	Dr. A. Kannan Dr. S. Pushpavanam	Tea Extraction Studies From a Vending Machine	Tata Tea Limited	18.80
2	Dr. R. Nagarajan	Modelling of Counter-Current Spray Drier	Hindustan Unilever Limited	06.60
		Anti-Fouling Strategies for Coal-Fired Power Plants	BHEL Trichy	20.76
		Design Of Suspension Of Zinc Oxide For Fortification Of Fertilizers	CORN	
3	Dr. Preeti Aghalayam Dr. Niket S. Kaisare	Predictive models for PGM-based Catalytic Convertors	General Motors	13.22
4	Dr. T. Renganathan Dr. S. Pushpavanam	Development of Simulators and Optimizer for Plasma Enhanced Integrated Gasification Combined Cycle Plant	Korea Institute of Science and Technology Korea	39.30
5	Dr. T. Renganathan Dr. Arun K. Tangirala Dr. S. Pushpavanam	Dynamic Modelling Of Fluidized Bed Gasifier	BHEL, Hyderabad	15.60
6	Dr. Sreenivas Jayanti	Study of Wet Lime-based Fuel Gas Desulphurization: Assessment of Existing Models for Performance and Design Prediction	BHEL	02.06
		Flow Optimization Of Power Plant Ducting	BHEL	18.75
7	Dr. Sreenivas Jayanti Dr. R. Ravi Krishna	Flue Gas desulphurization using Sea water	BHEL	25.00
8	Dr. B. Viswanathan Dr. R. Ramnarayanan	Solar radiation induced photo-electrochemical method for hydrogen generation	Tata Chemicals	05.79

Research Publications of the faculty members & research scholars:

- a) Total No. of papers published in Refereed National Journals - 01
 b) Total No. of papers published in Refereed International Journals - 83
 c) Total No. of papers presented in National Conferences - 11
 d) Total No. of papers presented in International conferences - 12

a) In Refereed National Journals:

Sl.No.	Name of the faculty	Title of the paper	Name of the Journal
1.	R. Ravi Krishna	A Review of Current Atmospheric Aerosol Research in India	Current Science, 102 (3), 440-451, 2012.

b) In Refereed International Journals:

Sl.No.	Name of the faculty	Title of the paper	Name of the Journal
1.	Dr. Abhit P. Deshpande	Cross linked poly (vinyl alcohol)/suffocated poly(ether ether ketone) blend membranes for fuel cell applications-Surface energy characteristics and proton conductivity	JOURNAL OF POWER SOURCES Vol. 196; Issue: 3 Special Issue: SI pp 946-955 Published: FEB 1 2011
2.	Dr. A.R. Balakrishnan	Effect of diameter on two-phase pressure drop in narrow tubes	EXPERIMENTAL THERMAL AND FLUID SCIENCE Vol. 35; Issue: 3; pp 531-541 Published: APR 2011
3.	Dr. M. Chidambaram	Closed-Loop Identification of Multivariable Systems by Optimization Method	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 51; Issue: 3; pp 1324-1336 Published: JAN 25 2012

4.	Dr. A. Kannan	Quantification of surface area and intrinsic mass transfer coefficient for ultrasound-assisted dissolution process of a sparingly soluble solid dispersed in aqueous solutions	ULTRASONICS SONOCHEMISTRY, Vol. 19; Issue: 3 pp: 509-521 Published: MAY 2012
5.		Intensification of the Dissolution of a Sparingly Soluble Solid from a Spinning Disk in the Presence of Power Ultrasound	INDUSTRIAL&ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23 pp: 13083-13091 Published: DEC 7, 2011
6.		Effects of Particle Diameter and Position on Hydrodynamics around a Confined Sphere	INDUSTRIAL&ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23; pp 13137-13160 Published: DEC 7, 2011
7.		Quantifying Enhancement in Heat Transfer Due to Natural Convection During Canned Food Thermal Sterilization in a Still Retort	FOOD AND BIOPROCESS TECHNOLOGY Vol. 4; Issue: 3 ; pp 429-450 Published: APR 2011
8.	Dr. K. Krishnaiah	Hydrodynamics and flow regimes in turbulent bed contactor with non-Newtonian liquids	CANADIAN JOURNAL OF CHEMICAL ENGINEERING Vol. 90; Issue: 1; pp 87-92 Published: FEB 2012
9.	Dr. R . Nagarajan	Investigation of High-Frequency, High-Intensity Ultrasonics for Size Reduction and Washing of Coal in Aqueous Medium	INDUSTRIAL& ENGINEERING CHEMISTRY RESEARCH Vol. 50 ; Issue: 23
10.		Effect of ultrasound on bubble breakup within the mixing chamber of an effervescent atomizer	CHEMICAL ENGINEERING AND PROCESSING Vol. 50; Issue: 3; pp 305-315 Published: MAR 2011
11.	Dr. T. Panda	Biosynthesis of Gold Nanoparticles	JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY Vol. 11; Issue: 12 pp10279-10294 Published: DEC 2011
12.	Dr. Tanmay Basak	Analysis of Entropy Generation Minimization during Natural Convection in Trapezoidal Enclosures of Various Angles with Linearly Heated Side Wall(s)	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 51; Issue: 10 pp: 4069-4089 Published: MAR 14 2012.
13.		Heatline Analysis for Natural Convection within Porous Rhombic Cavities with Isothermal/Nonisothermal Hot Bottom Wall	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 51; Issue: 4 pp 2113-2132 Published: FEB 1 2012
14.		Heat flow visualization for natural convection in rhombic enclosures due to isothermal and non-isothermal heating at the bottom wall	INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER Vol. 55; Issue: 4; pp 1325-1342 Published: JAN 31 2012
15.		Visualization of Heat Transport During Natural Convection in a Tilted Square Cavity: Effect of Isothermal and Nonisothermal Heating	NUMERICAL HEAT TRANSFER PART A-APPLICATIONS Vol. 61; Issue: 6 pp 417- Published: 2012
16.		Entropy generation vs energy flow due to natural convection in a trapezoidal cavity with isothermal and non-isothermal hot bottom wall	ENERGY Vol. 37; Issue: 1 pp 514-532 Published: JAN 2012
17.		Kinetic Mechanisms of Cholesterol Synthesis: A Review	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23 pp 12847-12864 Published: DEC 7 2011
18.		Analysis of Entropy Generation due to Natural Convection in Rhombic Enclosures	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23 ; pp 13169-13189 Published: DEC 7 2011

19.		A comprehensive theoretical analysis for the effect of microwave heating on the progress of a first order endothermic reaction	CHEMICAL ENGINEERING SCIENCE Vol. 66; Issue: 23 pp 5832-5851 Published: DEC 1 2011
20.		Role of ceramic composites and microwave pulsing on efficient microwave processing of pork meat samples	FOOD RESEARCH INTERNATIONAL Vol. 44 ; Issue: 9; pp 2679-2697 Published: NOV 2011
21.		The law of life: The bridge between Physics and Biology Comment on "The constructal law and the evolution of design in nature"	PHYSICS OF LIFE REVIEWS Vol. 8 ; Issue: 3 pp 249-252 Published: OCT 2011
22.		Heat line based thermal management for natural convection within right-angled porous triangular enclosures with various thermal conditions of walls	ENERGY Vol. 36; Issue: 8 pp 4879-4896 Published: AUG 2011
23.		Entropy generation due to natural convection in discretely heated porous square cavities	ENERGY Vol. 36; Issue: 8 pp 5065-5080 Published: AUG 2011
24.	Dr. Tanmay Basak	A comprehensive heatline based approach for natural convection flows in trapezoidal enclosures: Effect of various walls heating	INTERNATIONAL JOURNAL OF THERMAL SCIENCES Vol. 50; Issue: 8 pp 1385-1404 Published: AUG 2011
25.		A Complete Heatline Analysis on Visualization of Heat Flow and Thermal Mixing during Mixed Convection in a Square Cavity with Various Wall Heating	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 12 pp 7608-7630 Published: JUN 15 2011
26.		Role of entropy generation on thermal management during natural convection in porous square cavities with distributed heat sources	CHEMICAL ENGINEERING SCIENCE Vol. 66 Issue: 10; pp 2124-2140 Published: MAY 15 2011
27.		Analysis of entropy generation for distributed heating in processing of materials by thermal convection	INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER Vol. 54 Issue: 11-12; pp 2578-2594 Published: MAY 2011
28.		Finite element based heatline approach to study mixed convection in a porous square cavity with various wall thermal boundary conditions	INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER Vol. 54 Issue: 9-10 pp 1706-1727 Published: APR 2011
29.		Experimental and theoretical investigation on microwave melting of metals	JOURNAL OF MATERIALS PROCESSING TECHNOLOGY Vol. 211; Issue: 3 pp 482-487 Published: MAR 1 2011
30.		Effects of Thermal Boundary Conditions on Entropy Generation During natural convection	NUMERICAL HEAT TRANSFER PART A- APPLICATIONS Vol. 59; Issue: 5; pp 372-402 Published: 2011
31.		Theoretical analysis on the role of annular metallic shapes for microwave processing of food dielectric cylinders with various irradiations	INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER Vol. 54; Issue: 1-3; pp 242-259 Published: JAN 15 2011
32.		Non-Darcy Buoyancy Flow in a Square Cavity filled with porous medium for various temperature difference aspect ratios	JOURNAL OF POROUS MEDIA Vol. 14; Issue: 7; pp 649-657 Published: 2011
33.	Dr. S. Ramanathan	Numerical investigations of solution resistance effects on nonlinear electrochemical impedance spectra	JOURNAL OF SOLID STATE ELECTROCHEMISTRY Vol. 16; Issue: 3 pp 1019-1032 Published: MAR 2012

34.		Microwave Material Processing-A Review	AICHE JOURNAL Vol. 58; Issue: 2 pp 330-363 Published: FEB 2012
35.		Chemical Mechanical Planarization of Ruthenium with Oxone as Oxidizer	ELECTROCHEMICAL AND SOLID STATE LETTERS Vol. 15 Issue: 3 pp H55-H58 Published: 2012
36.		Effect of potential drifts and ac amplitude on the electrochemical impedance spectra	ELECTROCHIMICA ACTA Vol. 56; Issue: 5; pp 2606-2615 Published: FEB 1 2011
37.	Dr. S. Ramanathan	Characterization of TMAH Based Cleaning Solution for Post Cu-CMP Application	Micro Electronic Engineering (accepted)
38.		Numerical investigations of solution resistance effects on nonlinear electrochemical impedance spectra	Electrochem. 16(3)(2012) 1019-1932
39.		Experimental and theoretical investigations on microwave assisted material processing – a review	AIChE, 58(2) (2012)330-363
40.		Chemical mechanical planarization of ruthenium with Oxone as oxidizer	Electrochem. Solid-State Lett. 15(3) (2012) H55-H58
41.	Dr. R. Ravi	The Gibbs-Duhem Equation, the Ideal Gas Mixture, and a Generalized Interpretation of Dalton's Law	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol.50 Issue: 23 pp 13076-13082 Published: DEC 7 2011
42.		Kinetic Studies of Base-Catalyzed Transesterification Reactions of Non-edible Oils To Prepare Biodiesel: The Effect of Co-solvent and Temperature	ENERGY & FUELS Vol. 25; Issue: 7 Special Issue: SI. pp 2826-2832 Published: JUL 2011
43.	Dr. R. Ravikrishna	Atmospheric pollution in a semi-urban, coastal region in India following festival seasons	ATMOSPHERIC ENVIRONMENT Vol. 47 pp 295-306 Published: FEB 2012.
44.		Synthesis, characterization and mechanical behaviour of an in situ consolidated nanocrystalline FeCrNi alloy	JOURNAL OF MATERIALS SCIENCE Vol. 47; Issue: 3 pp 1562-1566 Published: FEB 2012
45.	Dr. Raghunathan Rengasamy	Plant Friendly Input Design: Convex Relaxation and Quality	IEEE TRANSACTIONS ON AUTOMATIC CONTROL Vol. 56 Issue: 6; pp1467-1472 Published: JUN 2011
46.		Kalman-based strategies for Fault Detection and Identification (FDI): Extensions and critical evaluation for a buffer tank system	COMPUTERS & CHEMICAL ENGINEERING Volume: 35 Issue: 5 Pages: 806-816 Published: MAY 11 2011
47.	Dr. T. Renganathan	"Generalized Analysis of Gasifier Performance using Equilibrium Modeling"	Ind. Eng. Chem. Res., 51, 1601-1611 (2012).
48.	Dr. P.S.T. Sai	Influence of Feed Entry on the Segregation of a Binary Mixture of Solids in a Continuous Fast Fluidized Bed	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23; pp 13076-13082 Published: DEC 7 2011
49.		Stable carbon isotopic compositions of total carbon, dicarboxylic acids and glyoxylic acid in the tropical Indian aerosols: Implications for sources and photochemical processing of organic aerosols	JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES Vol. 116 Article Number: D18307 Published: SEP 29 2011
50.		Macroscopic properties of liquid-solid circulating fluidized bed with viscous liquid medium	CHEMICAL ENGINEERING AND PROCESSING Vol. 50; Issue: 1 pp 42-52 Published: JAN 2011

51.	Dr. Sreenivas Jayanti	On the occurrence of two-stage combustion in alkali metals	COMBUSTION AND FLAME Vol. 158; Issue: 5; pp 1000-1007 Published: MAY 2011
52.		CFD study on the NO(X) formation during oxy-coal combustion in a typical 210MW Indian boiler	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY Vol. 241 Meeting Abstract: 38-FUEL Published: MAR 27 2011
53.		Feasibility of using ultrasound-assisted process for sulfur and ash removal from coal	CHEMICAL ENGINEERING AND PROCESSING Vol. 50; Issue: 3 pp 236-246 Published: MAR 2011
54.		Numerical study of on-board fuel reforming in a catalytic plate reactor for solid-oxide fuel cells	CHEMICAL ENGINEERING SCIENCE Vol. 66; Issue: 3; pp 490-498 Published: FEB 1 2011
55.	Dr. Sridharakumar Narasimhan	Leak detection in gas pipeline networks using an efficient state estimator. Part-I: Theory and simulations	COMPUTERS & CHEMICAL ENGINEERING Vol. 35; Issue: 4 pp - 651-661 Published: APR 2011
56.	Dr. T. Swaminathan	Synthesis of Fe ⁽³⁺⁾ doped TiO ⁽²⁾ photocatalysts for the visible assisted degradation of an azo dye	COLLOIDS AND SURFACES A-PHYSICO-CHEMICAL AND ENGINEERING ASPECTS Vol. 375 Issue: 1-3 pp 231-236 Published: FEB 5 2011
57.		Synthesis of Fe(3+) doped TiO(2) photocatalysts for the visible assisted degradation of an azo dye	COLLOIDS AND SURFACES A-PHYSICO-CHEMICAL AND ENGINEERING ASPECTS Vol. 375; Issue: 1-3 pp 231-236 Published: FEB 5 2011
58.		Characteristics, seasonality and sources of carbonaceous and ionic components in the tropical aerosols from Indian region	ATMOSPHERIC CHEMISTRY AND PHYSICS Vol. 11; Issue: 15; pp 8215-8230 Published: 2011
59.		Removal of Gas-phase Benzene in an Immobilized Photocatalytic Reactor	MACEDONIAN JOURNAL OF CHEMISTRY AND CHEMICAL ENGINEERING Vol. 30; Issue: 2; pp 221-228 Published: 2011
60.	Dr. S. Pushpavanam	Generalized Analysis of Gasifier Performance using Equilibrium Modeling	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 51; Issue: 4; pp1601-1611 Published: FEB 1 2012
61.		Professor M. S. Ananth: Leading Researcher, Gifted Teacher, and Visionary Leader of Higher Education in India	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 23; pp12845-12846 Published: DEC 7 2011
62.		Multicomponent Dosing in Membrane Reactors Including Recycling-Concept and Demonstration for the Oxidative Dehydrogenation of Propane	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50 Issue: 23; pp 12895-12903 Published: DEC 7 2011
63.		Experimental and Computational Investigation of Two Phase Gas-liquid Flows: Point Source Injection at the Center	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50 Issue: 23 pp 13220-13229 Published: DEC 7 2011

64.	Dr. S. Pushpavanam	Experimental analysis of spatio-temporal behavior of anodic dead-end mode operated polymer electrolyte fuel cell	JOURNAL OF POWER SOURCES Vol. 196 Issue: 23; pp 9931-9938 Published: DEC 1 2011
65.		Optimizing performance of liquid-liquid extraction in stratified flow in micro-channels	JOURNAL OF MICROMECHANICS AND MICROENGINEERING Vol. 21; Issue: 11 Article Number: 115030 Published: NOV 2011
66.		Analysis of liquid circulation and mixing in a partitioned electrolytic tank	INTERNATIONAL JOURNAL OF MULTIPHASE FLOW, Vol. 37; Issue: 9; pp 1191-1200 Published: NOV 2011
67.		An analysis of drifts and nonlinearities in electrochemical impedance spectra	ELECTROCHIMICA ACTA Vol. 56; Issue: 22 pp 7467-7475 Published: SEP 1 2011
68.		Analysis of unsteady gas-liquid flows in a rectangular tank: Comparison of Euler-Eulerian and Euler-Lagrangian simulations	INTERNATIONAL JOURNAL OF MULTIPHASE FLOW Vol. 37; Issue: 3 pp 268-277 Published: APR 2011
69.		Immiscible Fluid Displacement in porous media: experiments and simulations	JOURNAL OF POROUS MEDIA Vol. 14 Issue: 5; pp 423-435 Published: 2011
70.	Dr. Niket S. Kaisare	Numerical Analysis of Fractal Catalyst Structuring in Microreactors	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50 Issue: 23 pp12925-12932 Published: DEC 7 2011
71.		Propane combustion in non-adiabatic microreactors: 2. Flow configuration in posted microreactors	CHEMICAL ENGINEERING SCIENCE Vol. 66; Issue: 17 pp 3732-3741 Published: SEP 1 2011
72.		Propane combustion in non-adiabatic microreactors: 1. Comparison of channel and posted catalytic inserts	CHEMICAL ENGINEERING SCIENCE Vol. 66 Issue: 6 pp 1123-1131 Published: MAR 15 2011
73.		Approximate dynamic programming-based control of distributed parameter systems	ASIA-PACIFIC JOURNAL OF CHEMICAL ENGINEERING Vol. 6; Issue: 3 Special Issue: SI pp 452-459 Published: MAY-JUN 2011
74.		Incorporating delayed and infrequent measurements in Extended Kalman Filter based nonlinear state estimation	JOURNAL OF PROCESS CONTROL Vol. 21; Issue: 1; pp 119-129 Published: JAN 2011
75.	Dr. Upendra Nadarajan	Origin of the Difference in Structural Behavior of Poly(acrylic acid) and Poly(methacrylic acid) in Aqueous Solution Discerned by Explicit-Solvent Explicit-Ion MD Simulations	INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Vol. 50; Issue: 21; pp 11785-11796 Published: NOV 2 2011
76.		Effect of Chemical Substituents on the Structure of Glassy Diphenyl Polycarbonates	JOURNAL OF PHYSICAL CHEMISTRY B Vol. 115; Issue: 7 pp 1579-1589 Published: FEB 24 2011

77.	Dr. Upendra Nadarajan	Effect of Composition on Chain Dimensions of Styrene-Methylmethacrylate Random Copolymers under Theta Condition	JOURNAL OF MACROMOLECULAR SCIENCE PART B-PHYSICS Vol. 50; Issue: 5; pp 996-1005 Published: 2011
78.		Molecular thermodynamics of polymer chains confined between surfaces containing end-tethered flexible molecules	J. Macromol. Sci. B: Physics, in press, DOI: 10.1080/00222348.2011.564107
79.		Molecular simulations of the conformational properties of atactic poly(2-ethylbutyl methacrylate)	J. Appl. Polym. Sci., in press
80.		Thermodynamic Free Energy Behavior of Diblock Copolymer Chains Confined Between Planar Surfaces Having End-Tethered Flexible Polymer Molecules	J. Macromol. Sci.B: Phys., accepted
81.		Effect of organic modification on properties of PPO/PS miscible blend-Clay nanocomposites	J. Thermoplast.Comp.Mater., accepted
82.		Prediction of structure and energy of trans-1,4-polybutadiene glassy surfaces by atomistic simulations of free-standing ultrathin films	J. Macromol. Sci.B: Phys., accepted,
83.		Generalized theoretical study of the effect of molecular bond of model)2γ(optical tensor components on the mean-squared optical anisotropy bead-spring linear homopolymer chains	J. Macromol. Sci.B: Phys., accepted 31/3/12.

c) In Proceedings of National Conferences:

SI.No.	Name of the faculty	Title of the paper	Institution	Period
1	Dr. R. Nagarajan	Sono-Synthesis and Study of Polystyrene/Alumina Nanocomposites	Thrissur	23 – 25.2.2011
2	Dr. Upendra Nadarajan	Structural properties of poly(ethacrylic acid) in dilute aqueous solution investigated by molecular dynamics simulations	Kottayam	23 – 25.3.2012
3		Polymer blends; Composites; Interpenetrating Networks; Polymer Gels; Polyelectrolytes; Biopolymer-synthetic systems	Kottayam	23 – 25.3.2012
4		Nanomaterial-polymer structures; Multi-characterisation Techniques	Kottayam	23 – 25.3.2012
5	Dr. Raghuram Chetty	Electrochemical Reduction of Nitrate at Iron Phthalocyanine Cathode	Anna Univ., Chennai	29 – 30.3.2012
6		Development of Pd nanostructures as Cathode Catalysts for Fuel Cells	NSAMPA -2012 Coimbatore	29 – 30.3.2012
7		Synthesis of Pd Nanostructures by Potentiostatic Deposition for Oxygen Reduction Reaction" in'ChEmference	IISc Bangalore	22 – 23.9.2011

8		Electrochemical Reduction of Carbon Dioxide at Copper Electrodes, ChEmference	IISc Bangalore	22 – 23.9.2011
9		Development of porous titania electrodes for fuel cell applications" ChEmference	IISc Bangalore	22 – 23.9.2011
10		Electrochemical Reduction of Nitrate	IISc Bangalore	22 – 23.9.2011
11		Electrodeposition of Palladium on an Electrochemically Activated carbon Support For Oxygen Reduction Reaction	IISc Bangalore	19 – 20.8.2011

d) In Proceedings of International Conferences:

Sl.No.	Name of the faculty	Title of the paper	Institution	Period
1	Dr. A. Kannan	Factors Influencing Particle Breakage Characteristics in the Presence of Ultrasound	AICHE	16 – 21.10.2011
2	Dr. R. Nagaranan	Ultrasonic intensification of the chemical degradation of Methyl Violet: An experimental study	France	14 – 16.11.2011
3	Dr. R. Ramanarayanan	Costing out light sources and product collection during evaluation of materials for renewable fuels	MRS Spring 2011	25 –29.4.2011
4	Dr. Upendra Natarajan	Synthesis of Polystyrene-clay nanocomposites by in situ RAFT	ICNC 2011 Kottayam	7 – 9.1.2011
5		Sono-Synthesis and Study of Polystyrene/ Alumina Nanocompo-sites International conference on materials for the future	Government Engg. College Thrissur, Kerala	23 – 25.2.2011
6	Dr. S. Ramanathan	Evaluation of topological analysis of point cloud data using Rips, Witness and Lazy Witness complexes – A comparative study	Chennai	9 – 10.3.2012
7	Dr. Raghuram Chetty	Electrochemical reduction of Carbon dioxide at modified Copper electrodes	Annamalai University, Chidambaram,	9 – 11.2.2011
8		Synthesis and Characterization of Ruthenium-Based Cathode Catalysts Supported on Carbon Nanotubes for Fuel Cells	ACEPS – 2012 Chennai	5 – 8.1.2012
9		Electrochemical Deposition of Palladium Nanostructures on Carbon Coated Substrates for Oxygen Reduction Reaction	ACEPS – 2012 Chennai	5 – 8.1.2012
10		Comparison of Electrochemical Reduction of Carbon Dioxide at Copper and Zinc Electrodes"poster presentation at international conference on electrochemical power sources	ACEPS – 2012 Chennai	5 – 8.1.2012
11		Palladium Nano-structures with Dendritic Morphology for Oxygen Reduction Reaction	Rome, Italy	14 – 16.12.2011
12		Electrodeposited Palladium Nanoflowers for Oxygen Reduction Reaction	Boston, Massachusetts, USA	9 – 14.10.2011

Distinguished Visitors to the Department:

Sl.No.	Name of the visitor and Designation	Date of visit	Purpose of visit
1	Mr. Ruth Cardinaels Katholieke Universiteit Leuven, Belgium	6.6.2011	Seminar Talk
2	Mr. Naveen Krishna Reddy Katholieke Universiteit Leuven, Belgium	6.6.2011	Seminar Talk

3	Dr. Young Sang Cho Principal Researcher Korea Institute of Science and Technology, Korea	4.11.2011 & 29.3. 2012	Project Discussion
4	Prof Dr – Ing.Eckehard Specht, Otto-von-Guericke-University, Magdeburg	12.7.2011	Seminar Talk
5	Prof. Dr. – Kris Parimi Chevron Corporation, Richmond, USA	5.8.2011	Seminar Talk
6	Dr. Debjyoti Banerjee Texas A&M University	9.8.2011	Seminar Talk
7	Dr. Upal Ghosh University of Maryland, USA	10.8.2011	Seminar Talk
8	Dr. Gaurab Samanta University of Minnesota, USA	14.11.2011	Seminar Talk
9	Dr. David Hall Particle Measuring Systems, U.K.	8.12.2011	Seminar Talk
10	Dr. Ashok Krishna Chevron, USA	10.12.2011	For discussions related to Chair Professorship, research collaboration
11	Dr. Rajdip Bandyopadhyaya IIT Bombay	13.12.2011	Seminar Talk
12	Dr. Siva Vanapalli Texas Tech Univ. USA	9.1.2012	Seminar Talk
13	Dr. S.A. Bharadwaj Director (Tech) Nuclear Power Corp. of India	11.1.2012	Seminar Talk
14	Dr. Ram Seetharam University of Houston, USA	13.1.2012	Seminar Talk
15	Dr. K.S. Ravindhran Det Norske Veritas, USA	27.1.2012	Seminar Talk
16	Dr. Venkata Ramana Gundabala	31.1.2012	Seminar Talk
17	Dr. Jin-Goo Park, Micro Biochip Center, Hanyang University, Ansan, Korea	26-29.2.2012	Discussion on DST –NRF project
18	Dr. Prachi Thareja of Technology Indian Institute Gandhinagar	5.3.2012	Seminar Talk
19	Dr. Eric L Bibeau Associate Professor Univ.of Manitoba, Canada	9.3.2012	Seminar Talk
20	Dr. Suresh Bhatia Professor School of Chemical Engg, The Univ. of Queensland, Australia	12.3.2012	Seminar Talk

4.4.6 Other Activities of the Department/Centre:

Results obtained in research work (from M.S. & Ph.D thesis) of the scholar/faculty

1	B. Ambedkar, Nagarajan & Jayanti – In this study, ultrasonic washing of coals is investigated as a scalable method for de-ashing and de-sulfurization of Indian coals. Aqueous and reagent-based methods are compared, and a mechanistic model of sono-leaching of contaminants from coal is developed.
2	B. Ashraf Ali & Pushpavanam - The hydrodynamics of a partitioned bubble column reactor was analysed experimentally and theoretically. Applications in the electrolytic degradation of uric acid and in optimally carrying our series-parallel reactions have been proposed.
3	T.K. Jagannathan & Nagarajan - This work aims at characterizing flow induced by ultrasound and investigating the application of flow induced by ultrasound for destratification and atomization processes. High-frequency ultrasound was found to be effective in both applications.
4	Kalluri Ram Satish & Tanmay Basak – Studies on thermal processing during natural convection within cavities via heatline and entropy generation minimization approach.

5	P. Kanakasabai, Abhijit Deshpande & Susy Varughese – Development of novel polymer blends based on crosslinked poly vinyl alcohol and sulfonated poly ether ether ketone for proton conducting membranes
6	D. Krishna Sandilya & Kannan – Ultrasound at 20 kHz under isothermal conditions intensified mass transfer rates in dispersed systems significantly by enhancing the intrinsic mass transfer coefficient and interfacial area of mass transfer without altering the saturation concentration.
7	R. Manivannan & Ramanathan – Synthesized ceria abrasives by different methods and evaluated their performance, with and without additives for shallow trench isolation chemical mechanical planarization.
8	S. Noyel Victoria & Ramanathan – Proposed new oxidizing agent for ruthenium, CMP and characterize its performance under various conditions also electro chemically characterized copper and tantalum chemical mechanical planarization with various complexing agents.
9	Srinivasarao Modekurti, Shankar Narasimhan & Raghunathan Rangasamy – Modeling and optimization studies of a polymer electrolyte membrane fuel cell cathode with conventional single catalyst layer and proposed multiple catalyst layers.
10	Venkata Suresh Patnaikuni, Sreenivas Jayanti and Aphijit Deshpande – The effect of cross-flow in a fuel cell flow field has been studied through computational fluid dynamics simulations. A new flow field, which makes effective use of the cross-flow, has been proposed and is shown to improve the performance of the cell.
11	Bontapalle Sujitkumar & Upendra Natarajan – A molecular model for free energy of confined polymers and block copolymers interacting with tethered / end-grafted macromolecules, based on self-consistent field theory and scaling approach.
12	Mahesh Arigonda, Abhijit Deshpande & Susy Varughese – The effect of blending poly ether sulfone on the properties of sulfonated poly ether ether ketone for fuel cell applications
13	Ravi Kumar Gobbaka, Ravi & Anju Chadha – The kinetics of biodiesel production from non edible local oils- Jatropha and Mahua were studied highlighting the effects of co-solvent and temperature on the transesterification reaction.

6.1 International collaboration achievements by the Department

Several high end equipments have been purchased to improve the analytical instrumentation ability in the department. These include a High Resolution Scanning Electron Microscope (HR_SEM), Gas-Chromatograph (GC) and a Gas Chromatograph with Mass Spectroscopy (GC-MS). This has improved the accessibility of these instruments to research scholars enabling them to carry out state of the art research.

Bibliographic information

QR code for Microwave Heating of Oil-Water Emulsions

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