



**THAPAR UNIVERSITY, PATIALA**  
**DEPARTMENT OF CHEMICAL ENGINEERING**  
**NEWSCASTER**

Period: [July – December 2013](#).

Date: January 24, 2014

**New Research Projects granted**

Sr. No.	Project Title	Funding Agency	Duration	Amount (Lacs)	Investigator (s)
1	Centre of Excellence on Environment and Energy (NIPU under TEQIP-II, 1.2.1 Scheme)	MHRD (Govt. of India)	3 years	500.00	Coordinator: P.K. Bajpai  Members: D. Gangacharyulu H. Bhunia V.K. Sangal A.S. Reddy M.S. Reddy N. Tejoprakash Mandeep Singh R. Aggarwal S.K. Mohapatra
2	Application software development to evaluate thermal performance of tube type, air to air heat exchangers for high rated electrical motors	Global R&D Centre, Crompton Greaves Ltd, Mumbai	12 months	13.50	D. Gangacharyulu, Rajiv Kumar
3	Transalkylation of DIPB with benzene over nano Zeolite. A kinetic Study	DST	3 years	23.70	S. Barman
4	Development of Treatment and Regeneration Technology for Phytoestrogens from Waste Water Streams	CSIR	3 years	15.00	M. Ghosh S. Barman
5	Tailoring of Nanostructure for Reversible Hydrogen Storage: Molecular Simulation as a Guiding Tool	UGC (Startup Grant)	2 years (2013-2015)	6.00	Dr. Sudhir K Singh
6	Dehydration of aqueous acetonitrile solution by extractive distillation using salt/organic compound.	Thapar (Seed Grant)	2 years	5.00	Dr. Neetu Singh
7	Separation of Heavy Metals from Industrial Wastewater Using Reactive Extraction	Thapar University (Seed Grant)	2 years	5.00	Dr Dipaloy Datta
8	Synthesis, Characterization and Calibration of Upconverting Nanoheaters (NaYF <sub>4</sub> :Yb <sup>3+</sup> , Er <sup>3+</sup> /Tm <sup>3+</sup> ) for Generating Uniform and Controlled Heat for Biomedical Applications	Thapar University (Seed Grant)	2 years	5.00	Dr. Manoj Kumar

## Completed Research Projects

Sr. No.	Project Title	Funding Agency	Duration	Amount (Lacs)	Investigator (s)
1	Development of Nanostructured Adsorbents for CO <sub>2</sub> Capture	AICTE-RPS	2 years	20.00	Dr. P. K. Bajpai, Dr. H. Bhunia
2	Development of Adsorbents for CO <sub>2</sub> Capture from Flue gases	DST-SERC	3 years	27.08	Dr. P. K. Bajpai Dr. H. Bhunia
3	Microwave assisted polymerization of lactic acid and polylactic acid nanoparticles	IICHE	2013-14	0.50	Dr. Rajeev Mehta

## Publications (SCI/Non-SCI Journals)

Sr. No.	Title of paper	Author(s)	Journal name and other details	Impact factor
1	Blends of high density polyethylene and poly (L-lactic acid): Mechanical and thermal properties	G. Madhu, H. Bhunia, P.K. Bajpai	Polymer Engineering & Science, In press (2013)	1.243
2	Biodegradation Kinetics of Polypropylene / Polylactide Blends	Kimi Jain, G.Madhu, H.Bhunia, P.K.Bajpai, M.S. Reddy	Journal of Polymer Materials: An International Journal, In press (2013)	0.319
3	Gear Oil Drainage from End-Of-Life Vehicles (Elvs): Statistical Results	Mohit Garg, Sumeet Sharma and Dr. D. Gangacharyulu	International Journal of Engineering Sciences & Research Technology (IJESRT), 2(9): September, 2013, pp. 2558-2565. [ISSN: 2277-9655]	1.852
4	Processing of End-of-Life Vehicles (ELVS)	Mohit Garg, Sumeet Sharma and Dr. D. Gangacharyulu	International Journal of Research in Advent Technology, Volume 2, Issue 1, January 2014, pp. 6-9	–
5	Heat Transfer and Pressure Drop of Nanofluids containing Aluminum Oxide with Transformer Oil in Horizontal Pipe,	Anuj Khullar, Sumeet Sharma and D. Gangacharyulu	International Journal on Theoretical and Applied Research in Mechanical Engineering, Vol. 2, Issue 4, ISBN 2319-3182, 2013, pp. 137-143.	–
6	Experimental Study of Thermophysical Properties of Al <sub>2</sub> O <sub>3</sub> /Water Nanofluid,	Kamaldeep Singh, Sumeet Sharma and D. Gangacharyulu	International Journal of Research in Mechanical Engineering & Technology, Vol. 3, No.2, May – October 2013, pp 229-232.	–
7	Experimental Analysis on Influence of Temperature and Volume Fraction of Nanofluids on Thermophysical Properties,	Mahesh Juneja and D. Gangacharyulu	International Journal of Emerging Technologies in Computational and Applied Sciences (IJETCAS), 2279-0055, Issue 5, Vol. 3, June-August, 2013, pp. 233-238	1.237

8	Surface engineering characteristics of ultrasound assisted hypophosphite electroless plating baths	V.K. Bulasara, R. Uppaluri, M.K. Purkait	Surface Engineering, Vol. 29 (7), p. 489–494 (August 2013)	1.545
9	Equilibrium and Kinetic Studies of the Reactive Extraction of Nicotinic Acid with Tri-n-octylamine Dissolved in MIBK	Dipaloy Datta and Sushil Kumar	Industrial and Engineering Chemistry Research, 2013, 52, 14680-14686	2.206
10	A targeted and adjuvanted nanocarrier lowers the effective dose of liposomal Amphotericin B and enhances adaptive immunity in murine cutaneous leishmaniasis	Daftarian, P; Stone, G; Kovalski, L; <b>Kumar, M</b> ; Vosoughi, A; Urbietta, M; Blackwelder, P; Dikici, E; Serafini, P; Duffort, S; Boodoo, R; Rodríguez-Cortés, A; Lemmon, V; Deo, S; Alberola, J; Perez, V; Daunert, S; Agar, A.L.	The Journal of Infectious Diseases 2013, 208 (11): 1914-1922.	5.848
11	Polyethylene Glycol and Montmorillonite Clay Anchored Schiff Base Ligand-Metal Complexes	Shilpa Narang, Rajeev Mehta, S.Nath Upadhyay	Industrial and Engineering Chemistry Research, 52 (11), 3967–3973 ACS	2.206
12	Ring Opening Polymerization of Lactide in a Monomode Microwave using Stannous Octoate and Dibutyltin Dimethoxide Catalysts	P. Singla, <u>R.Mehta</u> , D. Berek, S.N. Upadhyay	Journal Of Macromolecular Science – Part A PAC Taylor & Francis	0.807
13	The effect of O <sub>6+</sub> and Si <sub>7+</sub> ion beam irradiations on poly (lactide-co-glycolide) (50:50) copolymer	Manpreet . Kaur, Rajeev . Mehta, Surinder . Singh	Polymer Science Series A, B, C Springer	0.669

### Publications - Conferences

Sr. No.	Title of paper	Author(s)	Conference Details	Dates
1.	Kinetics studies of hydrolysis reaction of cobalt chloride catalyst on hydrogen generation from sodium borohydride,	Arshdeep Kaur, D. Gangacharyulu and P.K. Bajpai	4th International Conference on Advances in Energy Research, (ICAER 2013), Department of Energy Science and Engineering, IIT Bombay, Mumbai, India.	10-12 December, 2013.
2.	Thermal Performance of Mesh Wicked Heat Pipe using Al <sub>2</sub> O <sub>3</sub> Nanofluids,.	Bhullar, B. S., Gangacharyulu, D. and Das, S. K.	17th International Heat Pipe Conference, IIT Kanpur, India	October 13-17, 2013,
3.	Studies on Some Transport Properties of Nanofluids and Biological Applications	Harkirat Kaur and D. Gangacharyulu	National Conference on Nanomaterials and Devices, (NCONAD-2013), National Institute of Technology Srinagar, Kashmir NIT Srinagar, India, pp 61.	October 3 - 5, 2013

4.	Kinetics of adsorption and of Photocatalytic Degradation of RB5 Catalysed by bare and Doped TiO <sub>2</sub> Photocatalyst	Shuchi , H Bhunia and P. K. Bajpai	Advanced Oxidation Processes (AOP 2013) organized by Department of Chemical Engineering, Thapar University, Patiala	November 21-23, 2013
5.	Nanostructured Carbon Adsorbents for CO <sub>2</sub> Capture	Chitrakshi Goel, H. Bhunia, and P. K. Bajpai	Chemcon 2013 66 <sup>th</sup> Annual Session of Indian Institute of Chemical Engineers, Hosted at Institute of Chemical Technology, Mumbai 400 019	27-30 December 2013
6.	Kinetic and isothermal studies on adsorption of 3,4 dichlorophenol by activated carbon	Harleen Kaur, Chitrakshi Goel , H. Bhunia and P. K. Bajpai	National Conference on Innovative Molecules for Sustainable Future (NCIMSF 2013), at School of Chemistry & Biochemistry, Thapar University, Patiala	24-26 Oct. 2013
7.	Carbon dioxide sequestration by anabaena variabilis in photobioreactor	Abhishek Sharma, H. Bhunia and P. K. Bajpai	National Conference on Innovative Molecules for Sustainable Future (NCIMSF 2013), at School of Chemistry & Biochemistry, Thapar University, Patiala	24-26 Oct. 2013
8.	Biodegradability studies of high-density polyethylene and poly(L-lactic acid) blends	Jasmeet Kaur, Gaurav Madhu, H. Bhunia and P. K. Bajpai	National Conference on Innovative Molecules for Sustainable Future (NCIMSF 2013), at School of Chemistry & Biochemistry, Thapar University, Patiala	24-26 Oct. 2013
9.	Carbon dioxide sequestration by <i>Chlorella vulgaris</i> in photobioreactor	Priyanka, Jain, H. Bhunia and P. K. Bajpai	National Conference on Innovative Molecules for Sustainable Future (NCIMSF 2013), at School of Chemistry & Biochemistry, Thapar University, Patiala	24-26 Oct. 2013
10.	Nanostructured carbon for environmental applications	Chitrakshi Goel, Nipun Dogra, H. Bhunia and P. K. Bajpai	National conference on nanomaterials and devices (NCONAD-2013) (ISBN:978-93-82880-70-7), page -56	October 3-5, 2013
11.	Development of high surface area nitrogen enriched nano-structured carbon adsorbents	Chitrakshi Goel, H. Bhunia and P.K. Bajpai	International Conference 9 <sup>th</sup> World Congress of Chemical Engineering (WCCE9) incorporating 15 <sup>th</sup> Asian Pacific Confederation of Chemical Engineering Congress (APCCHE2013), [WCCE9 & APCCHE2013]_Seoul, South Korea	Aug 17-23, 2013
12.	Investigation on Mechanical Properties of Nano-TiO <sub>2</sub> / Nano-SiO <sub>2</sub> / epoxy hybrid nanocomposites	Parvesh Kumar, Toyesh Upreti, Jaswinder Singh Saini, H. Bhunia	“International Conference on Nanotechnology (ICNT 2013)” at Haldia Institute of Technology, Haldia, Purba Medinipur, West Bengal, INDIA.	25-26 <sup>th</sup> October, 2013
13.	Mechanical Properties of Nano-Clay/Nano-TiO <sub>2</sub> / epoxy hybrid nanocomposites	Jatinder Singh, Toyesh Upreti, Jaswinder Singh Saini, H. Bhunia	“International Conference on Nanotechnology (ICNT 2013)” at Haldia Institute of Technology, Haldia, Purba Medinipur, West Bengal, INDIA.	25-26 <sup>th</sup> October, 2013
14.	Sliding wear performance of Nano-TiO <sub>2</sub> / Nanoclay / epoxy hybrid nanocomposites	Karanvir Singh Thind, Manjeet Singh, J. S. Saini, and H. Bhunia	“International Conference on Nanotechnology (ICNT 2013)” at Haldia Institute of Technology, Haldia, Purba Medinipur, West Bengal, INDIA.	25-26 <sup>th</sup> October, 2013

## Conferences Attended

S. No.	Participant	Date(s)	Program details & place
1.	P.K. Bajpai	24–25 July 2013	Indian Technology Congress, Bangalore
2.	P.K. Bajpai	24–27 October 2013	Paperex2013 (11 <sup>th</sup> International Technical Conference and Exhibition on Pulp, Paper, Conversion and Allied Industries, New Delhi
3.	H. Bhunia, P. K. Bajpai	27–30 December 2013	Chemcon 2013, 66 <sup>th</sup> Annual Session of Indian Institute of Chemical Engineers Hosted at Institute of Chemical Technology, Mumbai 400 019
4.	D. Gangacharyulu	October 13-17, 2013	17th International Heat Pipe Conference, IIT Kanpur, India.
5.	Dr. S.K. Singh (Topic: Development of Gypsum Powder Admixture for Exterior Wall Plaster)	November 30, 2013	International Conference on Powder, Granule and Bulk Solids: Innovations and Applications. November 28-30, 2013 at Thapar University Patiala.
6.	Dr. S.K. Singh (Topic: Effect of Dimensionality on Vapor-liquid Phase Transition)	December 19, 2013	58 <sup>th</sup> DAE-Solid State Physics Symposium. December 17-21, 2013 at Thapar University Patiala.
7.	P. Singla, R.Mehta, D. Berek, S.N. Upadhyay (Topic: Monomode Microwave Synthesis of Polylactic Acid and Preparation of In-situ PLA Nanocomposites)	2013	International Conference on Advanced Polymeric Materials (ICAPM 2013)", Plenary speaker and chaired three sessions.
8.	Rajeev Mehta (Topic: An overview of microwave synthesis of Polylactic Acid and preparation of in-situ PLA nanocomposites)	2013	National Conference on Innovative molecules for Sustainable Future on 24-26 Oct., 2013, Invited speaker and chaired one session.

## Training Programs Attended

S. No.	Participant	Date(s)	Program details & place
1.	Dr. P.K. Bajpai	September 13-14, 2013	<i>Basics and Applications of Aspen Plus</i> at Department of Chemical Engineering, Thapar University
2.	Dr. P.K. Bajpai	September 17-18, 2013	<i>Advance Topics in Fluid Flow and Heat Transfer</i> at Department of Chemical Engineering, Thapar University
3.	Dr. D. Gangacharyulu	August 05, 2013.	"Lecturer on Leadership" at Indian Institute of Technology, Delhi under TEQIP-II as part of "Enhancing Management Capacity"
4.	Dr. H. Bhunia	September 13-14, 2013	<i>Basics and Applications of Aspen Plus</i> at Department of Chemical Engineering, Thapar University
5.	Dr. H. Bhunia	September 17-18, 2013	<i>Advance Topics in Fluid Flow and Heat Transfer</i> at Department of Chemical Engineering, Thapar University
6.	Dr. Sudhir K Singh	June 3-5, 2013	Faculty Development Program on 'MATLAB for Chemical Engineers' held at Thapar University Patiala
7.	Dr. Sudhir K Singh	August 30-31, 2013	Short Term Training Program on 'Basics and Application of Computational Fluid Dynamics' held at Thapar University Patiala

### Conferences / Workshops / Training Programs Organized

S. No.	Organizer(s)	Date(s)	Program details
1.	Department of Chemical Engineering and School of Environment & Energy in collaboration with Society of Environmental Chemistry and Allied Sciences (SECAS)	November 21–23, 2013	First National Conference on “Advanced Oxidation Process (AOP) 2013” Patiala Convenor: P.K. Bajpai Organizers: V.K. Sangal, A. Garg

### Ph.D. Students Admitted

S. No.	Name & Roll No. of Scholar	Supervisor(s)	Thesis Title/ Research area	Date of Registration
1.	Anupama Pawar	Dr. Manoj Kumar Dr. S. Barman	Development and Evaluation of Infrared triggered Nanoparticles for Highly Sensitive Cellular-wide E-field Mapping	August 2013

### Invited Lectures delivered outside TU

S. No.	Participant	Topic	Date(s)	Program details & place
1.	Sudhir K Singh	Surface Tension of Nanoconfined Fluid: A Molecular Simulation Study	December 27, 2013	CHEMCON-2013 at ICT Mumbai-400019 December 27-30, 2013
2.	Dr. Manoj Kumar	Optically Active Biomaterials & their Interesting Biomedical Applications	11/10/13 to 13/10/13	“International Conference on Advanced Polymeric Materials” -held at Mahatma Gandhi University at Kottayam, Kerala

### Contributed Chapters

1. R. Mehta, P. Singla, V. Kumar and S. N. Upadhyay, “Synthesis of poly(lactic acid): a review”, Book Chapter in Encyclopedia of Biomedical Polymers and Polymeric Biomaterials, to be published by Taylor and Francis (2013).
2. P. Singla, R. Mehta and S. N. Upadhyay, “Polylactic Acid (PLA): Microwave Assisted Synthesis”, Book Chapter in Encyclopedia of Biomedical Polymers and Polymeric Biomaterials, to be published by Taylor and Francis (2013).

### Foreign Visits

**Dr. Haripada Bhunia** visited Seoul, South Korea to present the research paper entitled “Development of High Surface Area Nitrogen Enriched Nano-structured Carbon Adsorbents” an International Conference 9<sup>th</sup> World Congress of Chemical Engineering (WCCE9) incorporating 15<sup>th</sup> Asian Pacific Confederation of Chemical Engineering Congress (APCChE2013), [WCCE9 & APCChE2013] during August 17–23, 2013.

## **Editorial Board**

Dr. P.K. Bajpai, editorial board member for IPPTA Journal (India)

Dr. P.K. Bajpai, editorial board member for BioResources (USA)

Dr. R. Mehta, editorial board member for Research Bulletin of the Australian Institute of High Energetic Materials

Dr. S. Barman, editorial board member for Research and reviews: Trends in Chemical Engineering

Dr. V.K. Bulasara, editorial board member for "International Journal of Chemical Research" published by Bioinfo Publications.

Dr. M. Kumar, editorial board member for Journal of Chemical Engineering and Process Technology

## **Other Activities**

Dr. P.K. Bajpai chaired a session (no. 7) in First National Conference on "Advanced Oxidation Process AOP2013" held at Patiala during November 21–23, 2013.

Dr. P.K. Bajpai chaired a session in CHEMCON-2013 (Indian Chemical Engineering Congress), held at Institute of Chemical Technology, Mumbai during 24–27 December 2013.

Dr. R. Mehta participated in an executive energy brainstorm event "Powering Populations: Solving India's Energy Crunch" at the ITC Maurya, New Delhi, on Thursday, 5th December 2013. The event was hosted by CNBC International in association with Shell.

Dr. H. Bhunia chaired a Technical Session in National Conference on Advanced Oxidation Processes, held at Thapar University, Patiala during November 21–23, 2013.

Dr. H. Bhunia delivered an invited lecture on Photocatalytic Treatment of Textile Effluents: Case Studies in National Conference on Advanced Oxidation Processes (AOP 2013) organized by Department of Chemical Engineering, Thapar University, Patiala during November 21-23, 2013.

Dr. S. Barman reviewed NPTEL course 'Fuel and Combustion' organized from IIT Kanpur.

Dr. D. Datta reviewed a paper for Journal of Industrial & Engineering Chemistry.

Dr. M. Kumar reviewed a book chapter on Encyclopedia of chemical biology, Tadhg P. Begley, publisher: Springer, in Analytical and Bioanalytical Chemistry. 2010, 396 (7), 2373-74