

Curriculum Vitae

Dr. Chiranjib Bhattacharjee

Dean, Faculty of Engineering & Technology (FET) & Former Registrar, JU

Professor & Former Head

Dept of Chemical Engineering

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Personal Information:

Date of Birth: September 30, 1966
Nationality: Indian
Marital Status: Married

Education:

Secondary (1983) Passed 10-level examination of West Bengal Board of Secondary Education (W.B.B.S.E.) with first division and 77.8% marks.
Higher Secondary (1985) Passed Higher Secondary Examination (10+2 level) of West Bengal Council for Higher Secondary Examination (W.B.C.H.S.E.) with first division and 77.2% mark.
B.Ch.E. Hons.(1989) Chemical Engineering Department, *Jadavpur University*, Calcutta. Obtained first class honors with 81.4% marks.
M.Tech. (1991) Chemical Engineering Department, *Indian Institute of Technology (IIT)*, Kanpur. CPI: 9.33 out of 10 points.
Ph.D. Engineering (1998) Chemical Engineering Department, *Jadavpur University*.

Present Employment:

- Joined Jadavpur University in 24th June 1991 as Lecturer
- Promoted to Reader in 2000 and Professor in 2005. Served as Head of the Department for two years (as per Jadavpur University rule) from July 2010 to July 2012.
- Professor & former Head, Department of Chemical Engineering, Jadavpur University, Kolkata - 700 032, INDIA.
- Presently Dean, Faculty of Engineering & Technology (FET), Jadavpur University. Also served as Registrar, Jadavpur University during March – November, 2018 along with Dean, FET

Professional Affiliation:

- Life Member of Indian Institute of Chemical Engineers (I.I.Ch.E.): LM-10551
- Life Member of Institution of Engineers (India): M130793-7
- Life Member of Indian Science Congress Association: L-37272

Research Interests:

- Mass transfer studies in Ultrafiltration, Simulation of Ultrafiltration process.
- Other membrane separation processes like emulsion liquid membrane, etc.
- Wastewater treatment with specific emphasis on the membrane route
- Bioremediation
- Bioprocess Engineering

Invited talk/ Lecture:

1. Delivered a lecture on the topic “Separation of multicomponent systems of petroleum fractions” in a three-week UGC sponsored refresher course entitled “Petroleum refinery operations: Testing and characterizations” organized by Academic Staff College, Jadavpur University at the Department of Chemical Engineering during May 27 – June 15, 2002.
2. Delivered an invited lecture on “Membranes in dairy industry” at “International workshop on membranes and membrane reactor”, organized by Central Glass & Ceramic Research Institute held at Kolkata during January 3 – 4, 2005.
3. Acted as a resource person and delivered a lecture on “Waste water treatment – A step towards greener environment” in the two-day training course on SUSTAINABLE MANAGEMENT OF WATER SUPPLY, held on November 17-18, 2005 under UGC-POTENTIAL FOR EXCELLENCE SCHEME, organized by School of Water Resources Engineering, Jadavpur University.
4. Visited France and delivered invited talk on “Membrane bioreactor in wastewater treatment” under invitation and sponsorship from Indo-French Center for the Promotion of Advanced Research (IFCPAR), an autonomous body under Department of Science & Technology (DST), Government of India. The visit was made on December 2005 to INSTITUT EUROPÉEN DES MEMBRANES, MONTPELLIER, FRANCE & UNIVERSITÉ DE FRANCE-COMTÉ, BELFORT, FRANCE, as a part of project activity on EFFLUENT TREATMENT THROUGH MEMBRANE PROCESSES (IFCPAR Project No. 2805-1).
5. Delivered *invited lecture* on “Use of membrane technologies for recovery of valuable products”, at “Trombay Symposium on Desalination & Water Reuse” (TSDWR-07) held in BARC, Mumbai during February 7-9, 2007, jointly organized by Board of Research in Nuclear Sciences (BRNS) and Indian Desalination Association (InDA).
6. Delivered *keynote lecture* on “Membrane technology: Some prospective application area”, at National Seminar on Membrane Separation and its Application in Industry, organized by and held in Haldia Institute of Technology, Haldia in association with University College of Science & Technology, Calcutta University on March 23, 2007.
7. Delivered lecture on “**Membrane Bioreactor**” in the QIP course on “**Advances in Membrane Separation Technology**” held at Indian Institute of Technology (IIT), Guwahati during December 10 – 14, 2007.
8. Delivered invited lecture on “Use of Membrane Technologies for Recovery of Valuable Products”, in National Seminar on “Recent Advances in Chemical Engineering Operation an Process in Chemical and Allied Industries” organized in the INSTITUTE OF TECHNOLOGY, GURU GHASIDAS UNIVERSITY, BILASPUR during 05-06th February, 2008.
9. Delivered invited seminar talk on “**Membrane Technologies for Recovery of Valuable Products**” at Department of Chemical and Biomolecular Engineering, University of Melbourne, Australia on February 19, 2008 during visit to Australia as a part of Indo-Australian Project, entitled “**Milk nutraceuticals: A biotechnology opportunity for Australian and Indian Dairy Producers**”, under Indo-Australian Biotechnology Fund (IABF) (vide sanction letter no. BT/PR9547/ICD/16/754/2006 of DBT/Indo-Aus/01/35/06 dated July 02, 2007).
10. Delivered invited seminar talk on “**Studies on the fractionation of β -lactoglobulin from casein whey using membrane technology**” at Dairy Innovation Australia (DIA), Melbourne, Australia on February 19, 2008 during visit to Australia as a part of Indo-Australian Project, entitled “**Milk nutraceuticals: A biotechnology opportunity for Australian and Indian Dairy Producers**”, under Indo-Australian Biotechnology Fund (IABF) (vide sanction letter no. BT/PR9547/ICD/16/754/2006 of DBT/Indo-Aus/01/35/06 dated July 02, 2007).

11. Delivered keynote address on “**Water treatment in different fields – Role of Chemical Engineers**” in the one-day seminar organized by Chemical Engineering Department of Durgapur Institute of Advanced Technology & Management (DIATM), Durgapur, West Bengal on August 29, 2009.
12. Delivered invited talk on “Applications of Membrane Technology” in one-day seminar on “Glimpses of recent development in membrane technology”, held at Heritage Institute of Technology on March 5, 2010.
13. Delivered invited talk, entitled “**Development of membrane bioreactor to utilize whey in functional food formulation**” at InDA-APDA Conference on Desalination & Water Purification (InDACON – 2010) held at Radisson GRT Hotel, Chennai during March 10 – 12, 2010.
14. Delivered invited lecture on “Waste utilization – A step towards zero discharge concept” at the two-days conference on “**Sustainable Green Technology towards Positive Action for Environment**”, organized by **Vivekananda Institute of Environment and Management, Kolkata**, held on June 4 – 5, 2010 at NITTR, Kolkata.
15. Delivered invited lecture on “**Membrane Technology in Wastewater Treatment**” in one-day National Seminar on Wastewater Treatment Technologies organized by Calcutta Regional Center (CRC) of Indian Institute of Chemical Engineers (IChE) in commemoration of 122nd Birth Anniversary of Dr. H L Roy held on 2nd November, 2011.
16. Delivered invited lecture on “Air and Water Pollution in Oil Refinery” in a training program on “*Environment and Energy Management System*”, organized by Indian Oil Management Academy at Haldia Refinery May 14, 2012.
17. Delivered invited lecture on “Implementation of zero effluent concept using membrane technology: A step towards environmental sustainability” at an International Workshop on “**Sustainable water treatment technologies: achievements, perspectives, constraints**” held under the sponsorship of New-Indigo project under European Union (EU) during 10-11 December 2012 at **ICRA, Girona, Spain**.
18. Delivered invited lecture on “**Membrane Technology for Sustainable Development**” at **The Institute on Membrane Technology (CNR-ITM), University of Calabria, Rende, Italy** on 14th December 2012.
19. Participated in a Panel Discussion on “**Role of Industries in Technical Education**” in a National Workshop on **Convergence of Government Agencies and Industries for Funding in R&D (CGAIF-R&D 2012)** organized by Chemical Engineering Department, NIT Durgapur during July 26-27, 2012
20. Delivered invited lecture on “**Environmental Management: An integrated approach leading to zero-effluent concept**” in a one-day training program on *Health, Environment and Safety* at Paradip Refinery, organized by Indian Oil Corporation Limited (IOCL) on 17th August, 2012.
21. Delivered invited lecture on “**Enzyme Reactors**” in a one-day workshop on **Advances in Industrial Wastewater Treatment** at TERI-RETREAT, Gual Pahari, Gurgaon, Haryana, organized by TERI, jointly with DST on June 27, 2013.
22. Delivered invited lecture on “Role of membrane reactor for downstream processing of industrial effluent” in National Conference on “Recent Development in Downstream Processing in Chemical Industries” held during November 29 – 30, 2013, organized by The Institution of Engineers (West Bengal State Center) at Sir R N Mukherjee Hall, Gokhale Road, Kolkata.

23. Delivered invited lecture on “**Use of photo-catalytic membrane reactor for wastewater treatment**” at School of Environmental Science and Engineering, **Gwangju Institute of Science and Technology (GIST)**, South Korea on April 4, 2014.
24. Delivered invited lecture at Department of Life Science, **NIT Rourkela**, Orissa on 17th October 2014 on the topic “**Utilization of Casein whey – A step towards zero-discharge concept**”.
25. Delivered key note speech on the theme “**Bioremediation, Biomass & Bioenergy**” at the 2nd International Conference on Frontiers in Biological Science (InCoFIBS-2015) held at **NIT Rourkela** during January 22 – 24, 2015.
26. Delivered keynote lecture on “**Advanced technologies for industrial wastewater treatment leading to zero-effluent concept: Some case studies**” at the two-day workshop entitled "Advanced Technologies for Industrial Waste Water Treatment", held during 27th -28th April 2015 in **R&D Tata Steel, Jamshedpur**.
27. Delivered Invited Lecture on “**Advanced technologies for industrial wastewater treatment leading to zero-effluent concept: Some case studies**” at Norwegian University of Science and Technology (NTNU), Trondheim, Norway on September 22, 2015.
28. Delivered Keynote Lecture on “**Advanced membrane based method for wastewater treatment**” at **Golden Jubilee International Conference On Recent Advances In Chemical And Biochemical Engineering** held in Chemical Engineering Department of NIT Durgapur during October 2 – 4, 2015.
29. Delivered Invited Lecture on “Membrane Technology: Some advanced application” at Chemical Engineering Department, IIT Kharagpur on October 10, 2015 as a part of Research Scholar Day celebration as Chief Guest.
30. Delivered Keynote Lecture on “**Waste to energy: A step towards sustainable development**” at **International Conference on Recent Trends in Energy Technologies (ICRTET-2016)** on January 22, 2016 held in Chemical Engineering Department during January 21 – 23, 2016 organized by Department of Chemical Engineering, Haldia Institute of Technology and Haldia Regional Centre (HRC), Indian Institute of Chemical Engineers (IICChE).
31. Conducted one-day intensive course on “**Membrane Technology for Advanced Water Treatment**” on 15th June 2016 at NTNU, Trondheim, Norway under the Indo-Norwegian Collaboration Program (INCP). The course was attended by Master degree students, PhD scholars and faculty members of Chemical Engineering Department, Norwegian University of Science & Technology (NTNU).
32. Delivered Invited Lecture in the one-day workshop organized by Chemical Engineering Department, Norwegian University of Science & Technology (NTNU) on “**Advanced hybrid separation techniques in industrial wastewater treatment**” at Norwegian University of Science and Technology (NTNU), Trondheim, Norway on June 16, 2016. The topic of the lecture was “**Advanced technologies for industrial wastewater treatment leading to zero-discharge concept**”.
33. Delivered invited lecture on “**Advanced technologies for industrial wastewater treatment**” at Institute of Mechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria on June 20, 2016. The visit was made as a part of an Indo-Bulgarian project, under invitation from **Prof. Rumiana Kotsilkova**, Head of OLEM at Institute of Mechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria.
34. Delivered invited lecture on "**Solid Waste Segregation - Connecting People to Nature**" World Environment Day in a seminar, Indian Institute of Chemical Engineers. 2017.
35. Delivered invited lecture on “**Internet of things (IoT)**” at Jadavpur University, Organized by Department of Electronics and Telecommunication Engineering, 2017
36. Delivered invited lecture on “**Hybrid Manufacturing Technology (HMT-2017)**” under Technical Education Quality Improvement Programme (TEQIP Phase-II) of Jadavpur University, 8th March. 2017, Jadavpur University.
37. Delivered invited lecture on “**Understanding ICT for Professional Development in Education**” organized by Department of Information Technology, Jadavpur University, on 1st Dec, 2017. Jadavpur University, Kolkata.

38. Invited lecture on "**Glocalization -The Game-Changer of Modern Business**"? as the Chief Guest to Comercio Conclave 2018 – Inter College Business Convention hosted by J.D. Birla Institute, 2018.
39. Delivered invited lecture on '**Industry-Academia Interaction to meet the challenges in Process Industries for Sustainable Development**' at NIT Agartala. Chief Guest in the 2 Days TEQIP III sponsored Workshop Programme on "*Industry-Academia Interaction to meet the challenges in Process Industries for Sustainable Development*" on 5-6th September, 2018 at NIT Agartala.
40. Delivered invited lecture on "**Recent Trends in Chemical Engineering and Biotechnology in Mitigation of Global Warming**" at Institute of Engineers India, 2018.
41. Delivered invited lecture on "**Beat Plastic Pollution**" during World Environment Day 2018 celebration Seminar on "*Waste Management in Kolkata - Way Forward*" to be organized by the International Society of Waste Management, Air and Water (ISWMAW) in collaboration with CQMS, Jadavpur University and ITC Ltd, 5th June 2018, Jadavpur University, Kolkata.
42. Delivered invited lecture on "**National Conference on Engineering & Technology for Rebuilding India**" organized by Vivekananda Institute of Environment & Management (VIEM), Kolkata jointly with Central Glass & Ceramic Research Institute, Kolkata, 5-6 June 2018, Central Glass and Ceramic Research Institute, Jadavpur, Kolkata.
43. Delivered invited lecture on "**Advanced Technologies for Waste Water Treatment Leading to Sustainable Developments: A Case Study on Dairy Waste**" In 106th Science Congress, Lovely Professional University, 3-7th January, 2019, Phagwara, Punjab, India.
44. Delivered invited lecture on "**Energy Conservation and management**" organized by Shilpa Bichitra, an esteemed Industry & Commerce Oriented English Journal, 11th January 2019, Jadavpur University, Kolkata.
45. Delivered invited lecture on "**Concept & Technology of Selfless Service for Nation Building**" In Two Day Workshop organized by Vivekananda Institute of Environment and Management, Kolkata, 12-13 January, 2019, Kolkata.
46. Delivered invited lecture on "**Membrane Technology and its inter-disciplinary Applications**" during Inter-disciplinary refresher course on "Emerging Trends in Mechanical Engineering with Inter-Disciplinary Application" in the Department of Mechanical Engineering, Jadavpur University, January 2019.

Chairing session/ organizing event/ others:

1. Member of the organizing committee of "Kolkata Conference on Desalination and Membrane Based Technologies for Drinking Water" held during February 15 – 16, 2002 under the auspices of "Indian Desalination Association", an affiliate of International Desalination Association, organized by Central Glass and Ceramic Research Institute in collaboration with Jadavpur University and Public Health Engineering Directorate, Govt. of West Bengal.
2. Chaired a technical session (TS-9 on 14.12.2007) on "Environmental Science, Engineering and Management" in the National Conference on Frontiers in Chemical Engineering (**NCFCE-2007**) held at IIT, Guwahati during December 12 – 14, 2007. This session was chaired jointly with Dr. F. I. Khan, Memorial University, Canada.
3. Chaired a technical session (TS-15 on 21.12.2007) on "**Catalytic Membrane Contactor/Reactors**" in the 8th International Conference on Catalytic Membrane Reactor (**IIMR8**) held at Central Glass and Ceramic Research Institute (CGCRI), Kolkata, India during December 18 – 21, 2007. The keynote address was delivered by Dr. J.A. Dalmon of France and eminent speakers were Dr. V. V. Volkov of Russia and Dr. B. Chakroborty of Genesis Membrane, India.
4. **Organized a national conference on "Zero Effluent Discharge – Latest Development in Recycling"** as Organizing Secretary during December 22-23, 2007. The conference was organized on the behalf

of "The Institution of Engineers (India), West Bengal State Center, Chemical Engineering Division. The collaborators of this conference were CSIR and DBT, New Delhi. The sponsor was Haldia Petrochemical Limited, Haldia, West Bengal, India.

5. Chaired a technical session on "**Chemical Reaction Engineering**" (session code: R2E) on December 30, 2007 in the 60th Chemical Engineering Congress (**Chemcon 2007**) organized by Indian Institute of Chemical Engineers (IChE) and held at Heritage Institute of Technology, Kolkata.
6. Organized one-day seminar as joint-coordinator on "Glimpses of recent development in membrane technology" on March 5, 2010 at Chemical Engineering Department, Heritage Institute of Technology, Kolkata. The seminar was organized jointly by Heritage Institute of Technology and Jadavpur University.
7. Chaired a technical session on "**Traditional Medicines and Globalization – The Future of Ancient Systems of Medicine**" in the 12th International Congress of Ethnopharmacology (ISE 2012) organized by School of Natural Product Studies, Jadavpur University, Kolkata and held at Science City, Kolkata during February 17 – 19, 2012.
8. Member of Selection Committee in connection with recruitment of 'Scientist' at CSIR-Central Glass and Ceramic Research Institute (CGCRI), Kolkata on August 6, 2013 (vide letter no. GC/R&A/GAP0341/SS/2013-14(15) dated July 18, 2013).
9. Acted as Judge in the one-day workshop held at CSIR-CGCRI, Kolkata on Tuesday, August 20, 2013, observed as "Research Scholars Day Programme".
10. Acted as Session Chair in Technical Session – V (TS-V) at International Conference on "Membranes and Applications" (ICMA 2013) held at Central Glass and Ceramic Research Institute (CGCRI) during November 22-23, 2013.
11. Member of the Academic Committee, School of Natural Product Studies, Jadavpur University, Kolkata from 2010 onward (till date).
12. Member of the Academic Committee, School of Environmental Science, Jadavpur University, Kolkata from 2012 onward (till date).
13. Doctoral committee member of Chemical Engineering Department, University College of Science & Technology, Calcutta University, Kolkata from 2011 onward (till date).
14. Chaired a session on "Mathematical modelling: some advanced technique" on October 4, 2015 in the **Golden Jubilee International Conference On Recent Advances In Chemical And Biochemical Engineering** held in Chemical Engineering Department of NIT Durgapur during October 2 – 4, 2015.
15. Member of the Executive Council of Calcutta Regional Center (CRC) of Indian Institute of Chemical Engineers (IChE), and Chaired the post of Vice Chairman of CRC-IChE during 2015 – 2016.
16. Member of the Research & Development Committee of Indian Institute of Chemical Engineers (IChE), Head Quarters (HQ) for the period of 2015 – 2016 and 2016 - 2017.
17. Member of the Executive Council of Calcutta Regional Center (CRC) of Indian Institute of Chemical Engineers (IChE), and Chaired the post of Chairman of CRC-IChE during 2016 – 2017.

Award:

1. Received best paper award for the paper entitled "Evaluation on biological treatment for industrial wastewater", published on Journal of the Institution of Engineers (India), 85 (2005) pp. 39 – 44,

awarded at the inaugural session of 20th Indian Engineering Congress held at Eastern Zonal Cultural Center, Salt lake city, Kolkata 700 106 on December 16, 2005.

2. Received best project national award (first prize) from AICTE, which funded the project, entitled "*Facilitated solute transport in ultrafiltration of fruit juice and milk whey using rotating disk and cross flow membrane*" (file no. 8021/RID/NPROJ/TAP-6/2002-03). The award was given on May 11, 2006 at the National Technology Day celebration at Hotel Ashoka, New Delhi by Sri. Montek Singh Ahluwalia, Dy. Chairman and Sri Kapil Sibbal, Minister of S&T. The event was organized by Ministry of Science and Technology.
3. Received *SISIR KUMAR MITRA MEMORIAL AWARD* for the second best technical paper published in Indian Chemical Engineer during the year 2005 for the paper entitled "Polymerisation in Supercritical Carbon Dioxide", published in Indian Chemical Engineer, 47(4) (2005) pp. 224 – 234. The award was presented at CHEMCON-2006 held at Bharuch, Gujarat on December 27, 2006.
4. Received institution prize in the subject category for the paper entitled "A simplified model for simulation of plate reactive distillation column", which was awarded in the inaugural ceremony of 22nd Indian Engineering Congress held at Udaipur, Rajasthan on December 14, 2007 at 10:00AM.
5. Received "**Sir Ganga Ram Memorial Prize**" for best paper award in December 2010 from the Institution of Engineers (India). The award was given for best paper in the subject category for the paper as mentioned below: Ranjana Das, Samarpan Dutta, **Chiranjib Bhattacharjee**, "Separation of whey protein and recovery of lactose from whey by ultrafiltration", Journal of Institution of Engineers (India), 90 (2009), pp. 37 – 42.
6. Received best paper award (1st prize) in the poster paper presentation category in the paper, entitled "Removal of chromium (VI) from tannery wastewater using polyacrylamide along with ferric chloride/alum: A case study", at InDA – APDA Conference on Desalination and Water Purification (InDACON – 2010) held at Radisson GRT Hotel, Chennai during March 10 – 12, 2010.
7. Received "**Sir Ganga Ram Memorial Prize**" for best paper award in December 2013 from the Institution of Engineers (India). The award was given for best paper in the subject category for the paper as mentioned below: Arijit Nath, Shubhrajit Sarkar, Madhumita Maitra, **Chiranjib Bhattacharjee**, Ranjana Chowdhury, "An Experimental Study on Production of Intracellular b-Galactosidase at Different Conditions by Batch Process Using Isolated Bacillus safensis (JUCHE 1) and Characterization of Synthesized b-Galactosidase", J. Inst. Eng. India Ser. E (*Springer*) (2013) DOI 10.1007/s40034-013-0011-z
8. Received "Institute Prize" (Gold Medal) for best paper published in J. Inst. Eng. India Ser. E (*Springer*) Vol. 94 (2013) (DOI 10.1007/s40034-013-0023-8) in association with Bipasha Das and Sangita Bhattacharjee. The award was conferred in the Annual General Body meeting of the Institution of Engineers held on December 19, 2014.
9. Received best paper award for S. Bhattacharya, S. Putatunda, A. Mazumder, D. Sen, C. Bhattacharjee 'Bioremediation of Oil Contaminated Wastewater and Oil-In-Water Emulsion' in International Conference (ICON SWM 2017) held at Hyderabad, India.

Consultancy works:

Sl. No.	Title of the Project	Funding Agency/ Institute with amount approved	Year & duration	Completed /ongoing
1.	Involved in consultancy work in the off-site area of Barauni Refinery of Indian Oil Corporation	Indian Oil Corporation	2009 (One month)	Completed (PI)
2.	P&ID drawing modification in the TPS (thermal power station) area and risk assessment at Haldia Refinery	Indian Oil Corporation	2009 - 2010 (Three Month)	Completed (PI)
3.	Purification of lignosulphonates from black liquor using diafiltration accompanied ultrafiltration. (Through Industry-Institute Partnership Cell (IIPC), Jadavpur University)	Godavari Biorefineries Ltd., Mumbai, India (₹3,00,000/-)	2009 (One Month)	Completed (PI)
4.	Separation of lignosulphonates (LS), hemicelluloses and carbohydrates (mainly pentose) from Spent Sulphite Liquor.	Vistarr Organics Pvt. Ltd., Kolkata, India (₹1,50,000/-)	2010 (Four months)	Completed (PI)
5.	Quality Assurance Test.	Raja Khaini Co., India (₹20,000/-)	2012 (15 days)	Completed (PI)
6.	Enhancement in the percentage recovery of Lanolin from greasy wool during scouring process.	Jaya Shree Textiles Ltd., Rishra, India (₹10,00,000/-)	2012 (Six months)	Completed (PI)
7.	Development of innovative schemes for animal rendering process.	Himshailo Frozen Foods & Cold Storage Pvt. Ltd., India. (₹50,000/-)	2012 (Six months)	Completed (PI)
8.	Development of phosphoric acid process technology through HCl route based on bench scale experimentation	CFI Technologies Pvt. Ltd. (₹ 1,50,000/-)	2013 (Six months)	Completed (PI)
9.	Physical & Chemical Characterization of two different paints.	Texmaco rail & Engineering Ltd., India. (₹18,800/-)	2015 (7 days)	Completed (PI)
10.	Physical and Geotechnical characterization of ferrochrome slag that can be used as an oxide based sorbent. (Through Industry-Institute Partnership Cell (IIPC), Jadavpur University)	Tata Steel (₹45,000/-)	2016 (15 days)	Completed (Co-PI)

Teaching, Research and Industrial Experience

Teaching experience:

- Total teaching experience of more than **25** years.
- Joined as Lecturer in June 1991 at Jadavpur University.
- Presently serving as Professor from 2005.
- Acted as visiting faculty in number of Colleges/ Universities, like Calcutta University, Haldia Institute of Technology, Heritage Institute of Technology, etc.
- Acted as resource persons in several Quality Improvement Program (QIP)/ Short Term courses organized by IIT Kharagpur, IIT Guwahati, Jadavpur University, IIT Kanpur, ISM Dhanbad, IEST Shibpur, etc.
- Members of selection committee in Public Service Commission (WBPS), and several Colleges/ Institutes of National/ International repute.

Research experience:

- Recoveries of valuable proteins from casein whey, a waste stream from sweetmeat industries and consequent environmental protection from discharge of highly polluting waste.
- Enzymatic hydrolysis of lactose by lactase enzyme and production of milk nutraceuticals Galacto oligosaccharide.
- Fruit juice clarification by membrane technology and studies on improvement of shelf life upon ultrafiltration.
- Extraction of betel (pan) oil and it's by products from betel leaf (**Outreach program**).
- Bioremediation of heavy metals and organic pollutants in wastewater and soil by microbial route.
- Bioremediation of residual pesticides in agricultural field by microbial route and studies of its effectiveness.
- Recovery of lignin from pulp and paper mill effluent and treatment of spent sulphite liquor/ black liquor.
- Extraction of herbal dye and floral aroma from different waste flower residues and its commercialization (**Outreach program**).
- Studies on efficient module development for ultrafiltration purpose (high shear device, such as stirred rotating membrane module).
- Theoretical and experimental studies on liquid membrane using different solute/mixtures and removal of heavy metals from wastewater by emulsion liquid membrane (ELM)/micellar enhanced ultrafiltration process (MEUF).

Industrial experience:

- Worked in Larsen & Toubro, Mumbai for six months in 1991.
- Visited several industries, like Reliance Petrochemical, Jamnagar, Gujarat unit and several refineries of Indian Oil Corporation Limited, like Haldia, Paradeep, Vododara, and Barauni. Also visited Haldia Petrochemicals (HPL) several times.

Administrative Experience:

a) International Level:

- In the panel of reviewers in several international journals of repute published by Elsevier, American Chemical Society (ACS), Royal Society of Chemistry (RSC), etc.
- Doctoral thesis reviewer in several international institutes, like University of Melbourne, University of Malaya, Kuala Lumpur, Malaysia, etc.
- Associate Editor of the Journal "Scientifica" (Subject area: Biotechnology), published by Hindawi Publishing Corporation (one of the world's largest publishers of peer-reviewed, fully Open Access journals).

b) National Level:

- Academic senate member of Rajiv Gandhi Institute of Petroleum Technology, Raebareilly, UP
- Board of studies (BOS) member (external expert) of Chemical Engineering Department, ISM Dhanbad.
- Acting as a member in the panel of expert for evaluation of different project proposal submitted to Science & Engineering Research Board (SERB) (Established through an Act of Parliament: SERB Act 2008) of Department of Science & Technology, Government of India.

c) State Level:

- Advisory committee member construction of CETP (common effluent treatment plant) for Bantala Leather Complex constituted by West Bengal Pollution Control Board (WBPCB)

d) University Level:

- Dean-Faculty of Engineering and Technology, Jadavpur University (till now)
- Doctorate committee member of Jadavpur University (till now)
- Doctoral committee member of Calcutta University (Chemical Engineering Department)
- Elected member of Faculty Council of Jadavpur University over many years.
- Nominated member of Executive Council, Jadavpur University for the tenure of 8 months during of period as Head of the Department.
- Academic committee member of School of Bioscience and Engineering, Jadavpur University
- Academic committee member of School of Natural Product Studies, Jadavpur University
- Member of the UGC sponsored UPE (University of Potential of Excellence) program under the Scheme "Natural Products & Drug Delivery"
- Selected as the member of "Network Advisory Committee" to look after the initial implementation of intranet and internet in Jadavpur University.
- Member of "Placement Advisory Committee" from 2014 onwards.

e) Department /School Level :

- Acted as the Head of the Department (HOD) during 2010 - 2012
- Coordinator of MHRD sponsored "Bioprocess Engineering Program", which was a multi-disciplinary activities involving Chemical Engineering, FTBE (Food technology & biochemical engineering) and Pharmacy
- Coordinator of UGC sponsored DRS program running in the Chemical Engineering Department from 2006 to 2014 (8 years) and presently Dy. Coordinator of DRS-III program of UGC-SAP.

List of Ongoing/ completed research projects:

SI No.	Name of the funding agency	Project title	Year of funding	Duration (Years)	Amount Sanctioned INR. (in Lakhs, 0.1 million)	Status Completed/ Ongoing
1.	AICTE	Facilitated solute transport in ultrafiltration of fruit juice and milk whey using rotating disk and cross flow membrane	2003	3	Rs.19.6 lakhs	Completed Received best project national award (first prize) from AICTE
2.	TEQIP	Project on extraction of 'pan' oil and it's by products from betel leaf	2005	2	Rs. 5.5 lakhs	Completed
3.	Indo-Australian: DBT/ DEST	Milk nutraceuticals: A biotechnology opportunity for Australian and Indian Dairy Producers	2007	3	Rs. 54.2 lakhs (JU: 41.52 lakhs and IITK: 12.68lakhs)	Completed
4.	DST, Govt. of India	Development of Novel High Shear Membrane Module (As Co-Investigator, PI: Dr. DebasishSarkar, Asst. Professor, Chemical Engineering Dept., Calcutta University)	2009	3	Rs. 20.5606 Lakh (Project is operational in CU)	Completed
5.	UGC (Major Project)	Production and Purification of β -galactosidase from Milk Whey-based Lactic Acid Bacteria using Fermentation and Membrane-based Separation Techniques	2010	3	Rs. 9,79,800/-	Completed
6.	CSIR – SUPRA project	Modeling studies on CO ₂ capture from natural gas using gas-liquid contactor	2011	10 months	Rs. 3,70,000/-	Completed (on March31, 2012)
7.	DST (Indo-Korean)	Nano-material based membrane in water purification	2011	3	Rs. 23,92,560/-	Completed (on December 31, 2014)
8.	DST sponsored New Indigo project (Indo-EU project) Indian Collaborator: TERI	From Grey to Green: How to Improve the Sustainability of Wastewater and Drinking Water	2012	2	Rs. 18,59,120/- (JU: 15,34,160 TERI: 3,24,960)	Completed (on December 31, 2014)
9.	AICTE (RPS project)	Conversion of de-proteinated whey to ethanol File no.:8023/RID/RPS-22/Pvt (II-Policy)/2011 – 2012 (As Co-Investigator, PI: Dr. Sangita Bhattacharjee, Asst. Professor, Chemical Engineering Dept., Heritage Institute of Technology, Kolkata)	2012	2	Rs. 13,67,000/-	Completed
10.	DST (Indo-Bulgarian)	Nano-Photocatalysis membrane in energy conversion for water treatment (File no.: INT/BULGARIA/P-09/2012) (Bulgarian PI: Dr. Irena Borovanska, Sofia, Bulgaria)	2014	3	Rs. 9,50,000/-	Completed
11.	UGC	Research and education within	2015	3	Rs. 66,00,000/-	Completed on

	Indo-Norwegian Cooperation Programme 2014(INCP)	advanced hybrid separation techniques in industrial wastewater treatment File No. F. No. 58-3/2014(IC) dated December 2014 (Norwegian PI: Prof. Gisle Øye of Norwegian University of Science and Technology)				31 st December 2018
12.	DST - TSDP	Development of novel electrofloatation/ electrocoagulation enhanced membrane module for oily wastewater treatment	2016	3	Rs. 35,11,200/-	Continuing
13.	DST , India (WT)	Center for Technological Excellence in Water Purification CTEWP	2019	5	Rs. 92,75,788/-	Continuing
				TOTAL	Rs. 3,72,91,528/-	

List of Publications

Prof. (Dr.) Chiranjib Bhattacharjee

Chemical Engineering Department

Jadavpur University, Kolkata, India

Patent:

1. Dwaipayan Sen, **Chiranjib Bhattacharjee: A Bio-Reactor suitable for Enzymatic Reaction and method of carrying out Enzymatic Bio-Reaction, Application No. 1022/KOL/2010A, International Classification Number: C02F11/00, A61K9/00** (Details: The present invention relates to a bioreactor system for production of bio-components involving enzymatic reaction. More particularly, the present invention is directed to a rotating disk membrane based bioreactor (RDMBR) system for enzymatic reaction adapted to reduce the bio-fouling and favour proper substrate-enzyme contact. Advantageously, the bio-reactor of the invention would favour better and cost-effective utilization of such bio-reactors wherein the same can itself act as a production as well as a separation unit. The rotating disk membrane bio reactor (RDMBR) system according to the invention is thus directed to providing enhance yield of reaction components thereby making such reactors more user friendly and cost-effective to operate. The rotating membrane further reduces the built up resistance on the membrane to favour better enzyme-substrate contact and improved permeation of reaction components through the membrane and improve productivity. The reactor system for the invention and its method of operation would thus have wide scale application for production of bio-components using enzymatic reaction with enhanced productivity.)
2. Arijit Nath, Ranjana Chowdhury, **Chiranjib Bhattacharjee: Consortium of bacterium B. Safensis (JUCHE1) isolated from casein whey, its process of isolation and its industrial applications thereof, Application No. 755/KOL/2011, dated 06.06.2011.** [Details: This present invention relates to the bacterium *B. safensis* (JUCHE1) including high base pair plasmid deoxyribonucleic acid (DNA), sourced from casein whey and tolerant to broad range of osmolarity concentration (potential for growth in presence of sodium chloride), tolerant to the presence of glycine, lysozyme, tolerant to ultraviolet ray, tolerant to bile salts (OX gall). Advantageously, the isolated consortium of the present invention can grow in nitrogen free ashby's medium and is adapted to withstand hostile environmental conditions with respect to temperature, pH and high heavy metal concentration, and is adapted to withstand the presence of different antibiotics. Most advantageously, the isolated consortium is found to involve synergy with toxic heavy metals, natural prebiotics onion, natural antioxidant ginger, natural antibiotic turmeric and natural antioxidant chilly at very high concentrations, has potentiality of synthesizing acids from carbohydrates, favours decarboxylation of amino acids and prevents the de-amination of amino acids. More particularly, the present invention relates to a process of isolation of said bacterium from casein whey using modified deman, rogosa and sharpe medium (MMRS). Advantageously, the present invention also provides for a process for the synthesis of different enzymes, a process for the synthesis of antibiotics using isolated consortium of *B. safensis* (JUCHE 1). More advantageously, the present invention further provides for biopharmaceutical composition and process for obtaining the same and also relates to the treatment and detoxification of toxic heavy metals from industrial effluents using the said isolated consortium of *B. safensis* (JUCHE 1)].
3. Debasish Sarkar, **Chiranjib Bhattacharjee, Ankur Sarkar: A shear enhanced membrane module with inbuilt self cleaning mechanism, Application No. 845/KOL/2012 dated 27-07-2012.** [Details: A dynamic high shear membrane module having a self-cleaning mechanism is disclosed. The module consists of a hollow basket with four radial arms, fitted with four flat

membranes on alternate sides of adjacent radial arms, and was mounted on a central hollow shaft fitted with a pulley drive. The whole system with suitable sealing arrangement was placed in a stainless steel cylindrical tank fed by a triplex piston pump. The invention relates particularly to a new shear enhanced membrane module, named as Spinning Basket Membrane (SBM) module with a unique hydrodynamic self-cleaning facility to make the process continuous without any intermediate cleaning of membranes using chemicals. The shear enhanced membrane module for the invention and its method of operation would thus have wide scale application in dairy and food industry or in any effluent treatment plant.]

4. Ranjana Das, **Chiranjib Bhattacharjee**: *A process for manufacture of sesame seed based bioactive peptides*, **Application No. 899/KOL/2013 dated 29-07-2013**. [A process for manufacture of sesame seed based bioactive peptides preferably based on Enzyme Membrane Reactor (EMR) based integrated process of sesame seed based synthesis of bioactive peptides and sesame glucosides. The sesame peptides and sesame glucosides produces have valuable therapeutic applications and the advancement is directed to an integrated process of peptide synthesis and glucodides isolation which is simple and cost-effective. Advantageously, the process of the present advancement presents good product quality and productivity.]

Book:

1. Mousumi Chakraborty, **Chiranjib Bhattacharya**, Siddhartha Datta: **Chapter 4 - Emulsion Liquid Membranes: Definitions and Classification, Theories, Module Design, Applications, New Directions and Perspectives**, Pages 141-199, in “**Liquid Membranes: Principles and Applications in Chemical Separations and Wastewater Treatment**”, Copyright © 2010 Elsevier B.V., Edited by Vladimir S. Kislik (ISBN: 978-0-444-53218-3).
2. **Chiranjib Bhattacharjee**, Dwaipayan Sen: **Chapter 6 – Treatment of Kraft Black Liquor using membrane-based separation process**, Pages 77 – 105, in “**Membrane Technologies and Applications**”, Copyright © 2012 by Taylor & Francis Group, LLC (CRC Press), Edited by Kaustubha Mohanty & Mihir K. Purkait (ISBN 978-1-4398-0526-8).
3. Sudip Chakraborty, Ranjana Das Mondal, Debolina Mukherjee and **Chiranjib Bhattacharjee**: **Chapter 7 - Production of Bio-Based Fuels: Bioethanol and Biodiesel**, pages 153-180, in “**Sustainable Development in Chemical Engineering: Innovative Technologies**”, Copyright © 2013 by John Wiley & Sons Ltd, Edited by V. Piemonte, M. De Falco and A. Basile (ISBN: 978-1-119-95352-4).
4. Arijit Nath, Sudip Chakraborty, **Chiranjib Bhattacharjee**: **Chapter – 20: Bio-Reactor and enzymatic reactions in bioremediation**, in “**Microbial Biodegradation and Bioremediation**”, Elsevier publication, Edited by S. Das DOI: <http://dx.doi.org/10.1016/B978-0-12-800021-2.00020-0> © 2014 Elsevier Inc.
5. Ranjana Das, **Chiranjib Bhattacharjee**: **Chapter – 46: Processing Sesame Seeds and Bioactive Fractions**, in “**Processing and Impact on Active Components in Food**”, pp. 385 – 394. Academic Press, Elsevier publication, Edited by Victor Preedy. DOI: <http://dx.doi.org/10.1016/B978-0-12-404699-3.00046-9>, Copyright © 2015 Elsevier Inc.
6. **Chiranjib Bhattacharjee**, Arijit Nath, Alfredo Cassano, Reza Tahergorabi, Sudip Chakraborty: **Chapter – 5: Conventional macro- and micromolecules separation**, in “**Food Waste Recovery – Processing Technologies and Industrial Techniques**”, pp. 105 – 126. Academic Press, Elsevier publication, Edited by Charis M. Galankis. ISBN: 978-0-12-800351-0, (DOI: 10.1016/B978-0-12-800351-0.00005-5) Copyright © 2015 Elsevier Inc.

7. Arijit Nath, Ooi Chien Wei, Sangita Bhattacharjee, **Chiranjib Bhattacharjee**: Chapter – 12: Emerging Purification and Isolation, in “Food Waste Recovery – Processing Technologies and Industrial Techniques”, pp. 273 – 292. Academic Press, Elsevier publication, Edited by Charis M. Galankis. ISBN: 978-0-12-800351-0, (DOI: 10.1016/B978-0-12-800351-0.00012-2) Copyright © 2015 Elsevier Inc.
8. Pramita Sen, Arijit Nath, **Chiranjib Bhattacharjee**: Chapter – 9: Packed Bed Bioreactor and Its Application in Dairy, Food and Beverage Industry, in “Current Developments in Biotechnology and Bioengineering”, pp. 235 – 278, Elsevier publication, Edited by Christian Larroche, Maria Angeles, Goucheng Du, Ashok Pandey, ISBN: 978-0-444-63663-8, Copyright © 2017 Elsevier B.V.
9. Ranjana Das, Himadri Sekhar Samanta, **Chiranjib Bhattacharjee**, "Hydrogel: Polymeric Smart Material in Drug Delivery", Materials Science Forum, Vol. 875, pp. 45-62, in **Advanced Functional Materials: Properties and Applications, Vol. II.**, Edited by Dr. Inamuddin and Dr. Amir Al-Ahmed 2016 (DOI: 10.4028/www.scientific.net/MSF.875.45)
10. Santanu Sarkar, Ankur Sarkar, **Chiranjib Bhattacharjee**, “Nanotechnology based membrane separation process for drinking water purification”, Chapter – 10 in “Water Purification” Edited by Dr. Alexandru Mihai Grumezescu, Academic Press 2017 (ISBN No. 9780128043004).
11. Arijit Nath, Tiyasha Kanjilal, **Chiranjib Bhattacharjee**, “Application of Bioactive Composite Green Polymer for the Development of Artificial Organs”, Chapter – 2, in “New Polymeric Composite Materials - Environmental, Biomedical, Actuator and Fuel Cell Applications”, Edited by Inamuddin, Ali Mohammad and Abdullah M. Asiri 2016 (ISBN No. 13: 978-1-945291-08-1).
12. Sanjana Ghosh, **Chiranjib Bhattacharjee**, Ranjana Das, Bioremediation- Application of Biotechnology in Waste Management, In Ecological Sciences and Environmental Issues, Ed: Dr. Avnish Chauhan and Dr. Pawan Kumar ‘Bharti’, Apple Academic Press - an imprint of Taylor and Francis, CRC Press. 2016.
13. R. Das, **C. Bhattacharjee**, Hydrogel nanocomposites for controlled drug release, (Chapter 23), In Applications of Nanocomposite Materials in Drug Delivery Ed: Inamuddin S., Abdullah M. Asiri and Ali Mohammad, Woodhead Publishing, Elsevier, Cambridge, MA 02139, United States, 2018.
14. R. Das, **C. Bhattacharjee**, Photocatalytic Decontamination in Pharmaceutical Effluent Treatment, In ‘Handbook of Ecomaterials’, Ed: Leticia Myriam Torres Martinez, Oxana Vasilievna Kharissova, Boris Ildusovich Kharisov, Springer –Nature Publication, pp-1-17, ISBN 978-3-319-48281-1, December 2017.
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18. R. Das, A. Mondal, **C. Bhattacharjee**, (Chapter 23) Membrane Technology- A Sustainable Approach for Environmental Protection, In 'Membrane Technology- A Sustainable Approach for Environmental Protection', Ed: Dr. S. Sridhar, Taylor & Francis (CRC Press), pp 477-494, Boca Raton, NW, 2018. ISBN- 13:978-1-138-09542-7
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20. Tiyasha Kanjilal, **Chiranjib Bhattacharjee**, The green applications of magnetic sorbent for heavy metals, (Chapter 12) In 'Organic and Inorganic Pollutants in Wastewater: Methods of Analysis, Removal and Treatment', Ed: Dr. Inamuddin, Materials Research Forum LLC (under review).
21. R. Das, S. Das, **C. Bhattacharjee**, CO₂ sequestration using Algal biomass and its application as bio-energy, (Chapter 32), In 'Encyclopedia in Renewable & Sustainable Materials', Vol. 9, Ed: Dr. Gautam Majumdar, Elsevier-UK. (<https://doi.org/10.1016/B978-0-12-803581-8.11030-6>)
22. R. Das, B. Samanta, **C. Bhattacharjee**, Traditional Biomass: a replacement for Petro-fuels, (Chapter 41), In 'Encyclopedia in Renewable & Sustainable Materials', Vol. 9, Ed: Dr. Gautam Majumdar, Elsevier-UK. (<https://doi.org/10.1016/B978-0-12-803581-8.11039-2>)
23. Arijit Nath, Arpia Das, **Chiranjib Bhattacharjee**, Application of Biocomposite Polymers in Food Packaging: A Review, (Chapter 7), In 'Developing Technologies in Food Science Status, Applications, and Challenges', Ed: Megh R. Goyal, Murlidhar Meghwal, Taylor & Francis
24. Arijit Mondal, **Chiranjib Bhattacharjee**, Membrane Transport for Gas Separation, (Chapter 10), In "Recent Advances in Diffusion and Transport Phenomena of Composite Materials", Ed: Dr. Inamuddin, Trans Tech Publications Ltd. (under review).
25. Ankita Mazumder, Dwaipayana Sen, **Chiranjib Bhattacharjee**, Mass Transport through Composite Asymmetric Membranes, (Chapter 13), In "Recent Advances in Diffusion and Transport Phenomena of Composite Materials", Ed: Dr. Inamuddin, Trans Tech Publications Ltd. (under review).
26. Ankita Mazumder, Souptik Bhattacharya, **Chiranjib Bhattacharjee**, Role of nano-photocatalysis in heavy metal detoxification, (Chapter 1), in "Nanophotocatalysis and Environmental Applications: Detoxification and Disinfection", Ed: Dr. Inamuddin, Springer, U.K. (in press).
27. Shubhrajit Sarkar, Santanu Sarkar, **Chiranjib Bhattacharjee**, Green Synthesis of Novel Photocatalysts, (Chapter 9), Nanophotocatalysis and Environmental Applications: Materials and Technology", Ed: Dr. Inamuddin, Springer, U.K. (in press).
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1. Putatunda, S., Bhattacharya, S., Sen, D., Chiranjib Bhattacharjee, A review on the application of different treatment processes for emulsified oily wastewater, International Journal of Environmental Science and Technology (in press).
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1. Santanu Sarkar, **Chiranjib Bhattacharjee**, Subhrajit Sarkar, Studies on the performance of annular photo reactor (APR) for pharmaceutical wastewater treatment, Journal of Water Process Engineering, (2017) 19, pp. 26-34 (DOI: 10.1016/j.jwpe.2017.07.006).
2. Debojyoti Chakraborty, Mithu Naskar, Debasish Sarkar, **Chiranjib Bhattacharjee**, Performance characterization and steady-state modelling of spinning basket membrane module, Separation Science and Technology (Philadelphia), (2017) 52 (13), pp. 2173-2189. (DOI: 10.1080/01496395.2017.1322103)
3. Anindita Chowdhury, Selvaraj Kunjiappan, **Chiranjib Bhattacharjee**, Balasubramanian Somasundaram, Theivendren Panneerselvam, Biogenic synthesis of Marsilea quadrifolia gold nanoparticles: a study of improved glucose utilization efficiency on 3T3-L1 adipocytes, In Vitro Cellular and Developmental Biology - Animal, (2017) 53 (6), pp. 483-493. (DOI: 10.1007/s11626-017-0136-3)
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5. Tiyasha Kanjilal, **Chiranjib Bhattacharjee**, Siddhartha Datta, Assessing treatment of lead (Pb II) from industrial wastewater on dried bulbs of water hyacinth: Adsorption capacity, isotherm and kinetic study, International Journal of Environmental Technology and Management, (2017) 20 (1-2), pp. 101-127. (DOI: 10.1504/IJETM.2017.086468)
6. Sangita Bhattacharjee, Trina Dutta, **Chiranjib Bhattacharjee**, Removal of arsenic from contaminated water using micellar-enhanced-ultrafiltration, Indian Journal of Environmental Protection, (2017) 37 (1), pp. 4-12.

7. Anindita Chowdhury, Selvaraj Kunjiappan, Theivendren Panneerselvam, Balasubramanian Somasundaram, **Chiranjib Bhattacharjee**, Review- Nanotechnology and nanocarrier-based approaches on treatment of degenerative diseases, *International Nano Letter*, (2017) 7, pp. 91–122.
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2. Tiyasha Kanjilal, Chiranjib Bhattacharjee, Siddhartha Datta, “**Utilization of *S. aureus* strain 502A in biodegradation of insecticide acetamiprid from wetland wastewater**”, *Desalination and Water Treatment* (Taylor & Francis), (2016) 57 (28), pp. 13190-13206 (DOI: 10.1080/19443994.2015.1056839).
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10. Ranjana Das, A. De, S. Poddar, **Chiranjib Bhattacharjee**, Decorization of selective textile dyes using waterborne pathogenic bacterial strains, *Global Journal of Engineering Science and Research Management*, (2016), 3(12), 98-107.
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and Reactor Model, *Periodica Polytechnica Chemical Engineering*, (2016), 60 (4), pp. 298-312, DOI: 10.3311/PPCh.8286.

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5. Mousumi Chakraborty, Z.V.P.Murthy, **Chiranjib Bhattacharjee** and Siddhartha Datta, “Process Intensification: Extraction of Chromium (VI) by Emulsion Liquid Membrane”, *Sep. Sci. Technol.*, (*Marcel Dekker, Inc*), 40 (11) (2005) 2353 – 2364.

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4. Mousumi Chakraborty, **Chiranjib Bhattacharya** and Siddhartha Datta, “Effect of Drop Size Distribution on Mass Transfer Analysis of the Extraction of Nickel (II) by Emulsion Liquid Membrane”, *Journal of Colloids and Surfaces A: Physicochemical and Engineering Aspects, (Elsevier Science Publishers)*, 224 (2003) pp. 65 -74.
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2. Mousumi Chakraborty, Chiranjib Bhattacharjee and Siddhartha Datta, "Comparison of emulsion liquid membrane and activated carbon adsorption for nickel(II) removal from waste water of the electroplating industry", J. of Environmental Studies and Policy (Published by TERI), 4 (2) (2001) pp. 67 – 74.
3. Mousumi Chakraborty, Chiranjib Bhattacharya and Siddhartha Datta, "Mass Transfer Analysis of the Extraction of Nickel (II) by Emulsion Liquid Membrane", Indian Journal of Chemical Technology (CSIR Journal), 10 (5) (2003) pp. 311-320.
4. Mousumi Chakraborty, Chiranjib Bhattacharya and Siddhartha Datta, "Studies on Transport Mechanism of Nickel (II) from an Acidic Solution using Emulsion Liquid Membranes", Journal of Energy, Heat and Mass Transfer, 24 (2002) pp. 75 – 88.
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14. Jaydip Datta, Chiranjib Bhattacharjee, T. K. Bhattacharyya, B. R. De, "Mathematical Analysis on Certain Physical Properties Applied on Random Coil Model", *Current Science*, 93 (2) (2007) pp. 231 – 233.
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19. Jaydip Datta, Chiranjib Bhattacharjee and B R De, "Statistical analysis on quencher in photobiological application", *Indian Journal of Chemistry*, 47 (5) (2008), pp 708 – 710.
20. D. Datta, C. Bhattacharjee, and S. Datta, "Whey protein fractionation using membrane filtration – A review", *Journal of Institution of Engineers (India)*, 89 (2008), pp. 45 – 50.
21. Sangita Bhattacharjee, Chiranjib Bhattacharjee, Siddhartha Datta, "Recovery of lignosulphonates and medium quality water from pulp and paper mill effluent using membrane technology", *Indian Journal of Environmental Protection*, 29 (3) (2009) pp. 214 – 223.
22. Jaydip Datta, Chiranjib Bhattacharjee, Durgadas Mukherjee, B.R. De, T. K. Bhattacharya, "Mathematical Standardisation on Random Chain Model: Gaussian to Computational approach", *J. Indian Chem. Soc.*, 86 (10) (2009) pp. 1051 – 1056.
23. Ranjana Das, Samarpan Dutta, Chiranjib Bhattacharjee, "Separation of whey protein and recovery of lactose from whey by ultrafiltration", *Journal of Institution of Engineers (India)*, 90 (2009), pp. 37 – 42.
24. Debasish Sarkar, Apratim Bhattacharya, Chiranjib Bhattacharjee, Dulal C. Mukherjee, "Modelling and simulation of unstirred dead-end ultrafiltration of macromolecules", *J. Indian Chem. Soc.*, 87 (01) (2010) pp. 105 – 116.
25. Sourav Mondal, Sayan Dasgupta, Siddhartha Sengupta, Chiranjib Bhattacharjee, "A study based on different dosing levels of primary tannery wastewater treatment", *Indian Journal of Environmental Protection*, 30 (1) (2010) pp. 40 – 45.

26. Saurav Bhattacharyya, Chiranjib Bhattacharjee, "India, the Sleeping Giant Country for Bioethanol Production from Agricultural Residues: A Review", *Indian Journal of Environmental Protection*, 30 (4) (2010) pp. 300 – 306.
27. Saurav Bhattacharyya, Chiranjib Bhattacharjee, Siddhartha Datta, "Increasing the extraction of total reducing sugar (TRS) from wheat straw through sonication treatment after dilute acid hydrolysis", *Journal of Institution of Engineers (India)*, 91 (3) (2011) 10 – 14.
28. Ranjana Das, Dwaipayan Sen, Ankur Sarkar, Chiranjib Bhattacharjee, "Study on the Effect of Membrane Speed on Enzymatic Synthesis of Galacto-oligosaccharides using Immobilized β -Galactosidase in Rotating Disk Membrane Reactor (RDMR)", *Journal of Institution of Engineers (India)*, 91 (3) (2011) 53 – 60.
29. Suman Dutta, Chiranjib Bhattacharjee, Siddhartha Datta, "Kinetic, Isotherm and Thermodynamic Study of Cr (VI) Adsorption on Powder Activated Carbon", *Journal of Institution of Engineers (India)*, 91 (3) (2011) 27 – 33.
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31. Arijit Nath, Shiladitya Ghosh, Ranjana Chowdhury, Chiranjib Bhattacharjee, "Can Whey-based *Bacillus safensis* (*JUCHE 1*) become a Food supplement? – Growth kinetics, Probiotic activity, Sensitivity to Natural and Synthetic Antibiotics and Synergy with Prebiotics and Natural Antioxidants", *International Journal of Systems, Algorithms & Applications*, (2012) 2 pp. 51 – 55.

List of Doctoral Supervision:

Ph.D. Awarded (from Jadavpur University)

Sl. No.	Name	Co-Supervisor(s)	Title	Year awarded
1.	Mousumi Chakraborty	Dr. Siddhartha Datta, JU	Mass transfer characteristics for extraction of multicomponent mixture by liquid surfactant membrane	2003
2.	Bidhan Chandra Bag	Dr. K. Sekhar (DRDL, Gwalior)	Process Technology Development for Industrial Production of N,N'-bis(2,4,6-Trichlorodiphenyl)-urea (CC-2)	2005
3.	Smt. Baisali Sinha	Dr. Vijay Kale, IICT, Hyderabad	Membrane application in water treatment.	2007
4.	Debasish Sarkar	----	Studies on mathematical modeling of ultrafiltration process.	2007
5.	Projjwal Sarkar	Dr. Siddhartha Datta, Jadavpur University	Mass transfer study and parameter estimation in case of ultrafiltration of macromolecular solutes.	2010
6.	Suman Datta	Dr. Siddhartha Datta, Jadavpur University	Development of hybrid system using membrane technology for waste water treatment.	2011
7.	Saravanan Krishnaswami	Dr. Vijay Kale (I.I.C.T., Hyderabad)	Studies on esterification and transesterification reaction of non-edible oils for preparation of bio-diesel.	2011
8.	Dwaipayan Sen	----	Treatment of industrial water using enzymatic membrane reactor and its modeling to evaluate the optimized parametric condition.	2012
9.	Diptendu Datta	Dr. Debasish Sarkar (Chem. Eng. Dept., CU)	Protein separation using membrane technology.	2012
10.	Arunava Chowdhury	Dr. Siddhartha Datta, Jadavpur University	Application of emulsion liquid membrane for separation of heavy metals from tannery wastewater.	2013
11.	Sourav Bhattacharya	Dr. Siddhartha Datta, Jadavpur University	Production of bio-ethanol from cocktail of rice straw with different carbohydrate waste.	2013
12.	Ankur Sarkar	Dr. Debasish Sarkar Chem. Eng. Dept., CU	Development of novel high-shear membrane module	2013
13.	Sandip Sarkar	Dr. Sibdas Bandyopadhyay (CGCRI) and Dr. Antrolarbot (IEM, Montpellier, France)	Development of capillary membrane based on clay-alumina formulation and surface modification.	2013
14.	Arijit Nath	Dr. Ranjana Chowdhury, Jadavpur University	Studies on Microbial Production, and Membrane based purification of β -galactosidase from Casein whey.	2014
15.	Santanu Sarkar	----	Development of advance oxidation process for pharmaceutical waste water treatment	2015
16.	Pramita Sen	Prof. P.	Studies on enzymatic membrane reactors	2015

		Bhattacharya, HIT, Kolkata		
17.	Barnali Mondal	Dr. Ranjana Chowdhury, Jadavpur University	Studies on production and characterization of probiotic bio-preservatives from food and vegetable waste.	2015
18.	Sujaya Bandyopadhyay	Dr. Ranjana Chowdhury, Jadavpur University	Production of biosurfactant through biodesulphurization of hydrotreated diesel and spent engine oil	2015
19.	Kunjiappan Selvaraj	----	A study of isolation, functional, structural characterization, formulation and pharmacological actions of flavonoids from <i>azolla microphylla</i> fern	2016
20.	Bipasha Das	Dr. Sangita Bhattacharjee Chem. Eng. Dept., Heritage Inst. Of Tech.	Study on conversion of deproteinated whey to ethanol	2016
21.	Sirsha Putatunda	Dr. Dwaipayan Sen, Asst. Professor, Chem. Eng. Dept., Heritage Inst. of Tech., Kolkata	Application of high-shear ultrafiltration along with other tertiary routes in industrial waste water treatment	2017
22.	Trina Dutta	Dr. Sangita Bhattacharjee Chem. Eng. Dept., Heritage Inst. Of Tech.	Studies of Arsenic removal through solid membrane and it's dynamic simulation	2018
23.	Debojyoti Chakraborty	Dr. Debasish Sarkar Chem. Eng. Dept., CU	Some studies on performance characteristics of shear enhanced membrane module	2018
24.	Anindita Chowdhury		Development of nutraceutical from bioactive component of plant extract	2018

Ph.D. Awarded (from Other University/ Institute)

Sl. No.	Name	Co-Supervisor(s)	Title	Year awarded/ Univ./ Inst.
1.	Ranjana Das	Dr. Santinath Ghosh, CU	Studies on process development for better utilization of seed meal constituents	2009 CU
2.	Jaydip Datta	Dr. B. R. De, Vidyasagar University	Mathematical validation of certain physical properties applied on some biomolecules	2011 Vidyasagar University

Ph.D. Continuing:

Sl. No.	Name	Co-Supervisor(s)	Title	Year of Registration & University
1.	Shubhrajit Sarkar	----	Development of advance oxidation method for the treatment of agricultural waste water treatment	2013 (NEW) JU
3.	Ankita Mazumder	Dr. Dwaipayan Sen, Asst. Professor, Chem. Eng. Dept., Heritage Inst. of Tech., Kolkata	Studies on advanced oily wastewater treatment process	2016 (NEW) JU
4.	Souptik Bhattacharya	Dr. Dwaipayan Sen, Asst. Professor, Chem. Eng. Dept., Heritage Inst. of Tech., Kolkata	Biological production of biopharmaceuticals and purification using advanced separation technology	2016 (NEW) JU

M.E. Thesis supervision:

No.	Name	Year of Registration	University	Status	Topic
1.	Swarup Nandi	1996	CU (jointly with Dr. Dipa Biswas of CU)	Awarded on 1998	Simulation of multicomponent distillation column & studies of the effect of different parameters on distillation performance
2.	Arvind Krishnaswamy	1998	JU	Awarded on 2000	Software development for design & simulation of multicomponent distillation column
3.	V. Balaji	2001	JU (jointly with Prof. S. Datta of JU)	Awarded on 2003	Studies on performance of biological treatment unit treating waste water of dyeing and bleaching unit
4.	K. Sasikumar	2002	JU (jointly with Prof. S. Datta of JU)	Awarded on 2004	Studies on the Characteristics of Wastewater Flowing Through Tolly's Nullah
5.	Smt. Dipannita Mondal	2002	JU	Awarded on 2004	Software development on multicomponent separations
6.	Suman Dutta	2003	JU (jointly with Prof. P. Bhattacharya of JU)	Awarded on 2005	Studies on the separation of biomolecules by ultrafiltration
7.	Smt. Sunita Biswas	2003	JU (jointly with Prof. S. Datta of JU)	Awarded on 2005	Characterization of industrial wastewater and its treatment
8.	Smt. Ranjana Das	2003	CU (jointly with Dr. S.N. Ghosh of CU)	Awarded on 2005	Processing of sesame protein by membrane technology
8.	Dwaipayan Sen	2004	JU (jointly with Prof. S. Datta of JU)	Awarded on 2006	Characterization and treatment of various industrial effluents using membrane and other tertiary treatment route
9.	Ayan Hore	2005	JU (jointly with Prof. S. Datta of JU)	Awarded on 2007	Studies on the treatability of wastewater using membrane technology
10.	Sachikanta Pradhan	2005	JU (jointly with Prof. P. Bhattacharya of JU)	Awarded on 2007	Separation of trypsin from goat pancreatic juice by affinity ultrafiltration
11.	Siddhartha	2006	JU	Awarded	Treatability Studies of Industrial

	Sengupta			on 2008	Waste Water
12.	Arijit Mondal	2006	JU	Awarded on 2008	Treatability studies of Industrial waste water and optimization of process parameters
13.	Salil Ghosh	2006	JU	Awarded on 2008	Study of adsorption efficiency utilizing various adsorbents in case of waste-water treatment
13.	Suprabhat Saha	2006	JU	Awarded on 2008	Separation of sweeteners from stevia leaf
14.	Anirban Roy	2007	JU	Awarded on 2009	Wastewater treatment using biological routes
15.	Samarpan Dutta	2007	JU	Awarded on 2009	Mathematical modeling of ultrafiltration membrane module
16.	Ankur Sarkar	2007	JU	Awarded on 2009	Removal of Cr(VI) using coagulation/flocculation method
17.	Kotta Apparao	2007	JU (jointly with Prof. S. Datta of JU)	Awarded on 2009	Removal of heavy metals from industrial waste by Micellar Enhanced Ultrafiltration
17.	Pritam Biswas	2008	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2010	Studies on production of biofuel from dairy Effluent
18.	Mriganka Sekhar Manna	2008	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2010	Study of membrane bioreactor for the treatment of textile waste water
19.	Shubhrajit Sarkar	2009	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2011	Studies on fermentative beta-galactosidase production from casein whey
20.	Anushree Ghoshal	2009	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2011	Separation of protein by bioselective adsorptive ultrafiltration and study on influence of affinity ligand on the protein separation
21.	Chitrita Kundu	2009	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2011	Water quality analysis of East Kolkata Wetlands
21.	Soumyadeep Deb	2010	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2012	Studies on the performance of membrane bioreactor
22.	Sirsha Putatunda	2010	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2012	Separation of macromolecular solutes using high-shear ultrafiltration device

			Chowdhury of JU)		
23.	Debayan Das	2010	JU (jointly with Prof. R. Chowdhury of JU)	Awarded on 2012	Bioremediation of heavy metals from industrial effluent
24.	Ashim Kumar Khan	2011	JU	Awarded on 2013	Performance evaluation and mathematical model development of a high shear membrane device
25.	Jigisha Roy	2011	JU	Awarded on 2013	Removal of Waste from Waste Water using Nano-Particle
26.	Soumen Roy	2011	JU	Awarded on 2013	Study of the production of galacto-oligosaccharide (GOS) using enzymatic membrane reactor
27.	Ananda Prasad Roy	2011	JU	Awarded on 2013	Optimization of lactose hydrolysis using β -galactosidase both in free & immobilized mode
28.	Kalpana Biswas	2011	JU	Awarded on 2013	De-proteination of whey by UF/DF hollow fiber membrane and studies on lactose hydrolysis
29.	Alokeparna Roy	2012	JU	Awarded on 2014	Bioethanol Production from Deproteinated Whey
30.	Anindita Chowdhury	2012	JU	Awarded on 2014	Studies on the isolation, optimization and evaluation of the biological activities of polyphenolic compounds from waste cauliflower leaves
31.	Avik Halder	2012	JU	Awarded on 2014	Treatment of Oil-spills by Hybrid Methodologies
32.	Monami Das	2013	JU	Awarded on 2015	Bioethanol production by fermentative and/ or enzymatic pathway
33.	Samya Subhra Das	2013	JU	Awarded on 2015	Studies on the use of Advanced oxidation process For treatment of different industrial waste water
34.	Sanjukta Das Gupta	2013	JU	Awarded on 2015	Enzymatic way of degradation of oil and grease in waste water
35.	Sumona Das	2013	JU	Awarded on 2015	Studies on optimizing biodegradation of a field pesticide using indigenous bacteria isolated from agro-effluent
36.	Souptik Bhattacharya	2013	JU	Awarded on 2015	Bio-remediation of used motor oil using microbes isolated from automobile industry effluent
37.	Priyanka Ghosh	2014	JU	Awarded on 2016	Process optimization of photo-catalytic degradation of industrial textile effluent.
38.	Monideepa Das	2014	JU	Awarded on 2016	Studies on bioremediation of agricultural pesticides using isolated microbial strains from natural sources.
39.	Susmit Dubey	2014	JU	Awarded on 2016	Mathematical modeling and simulation of photo-catalytic membrane reactor.

40.	Dipanjana Banerjee	2014	JU	Awarded on 2016	Bio-remediation of free pesticides using microbial strains isolated from natural sources.
41.	Monidip Pal	2015	JU	Awarded on 2017	Advanced technique for waste - water treatment.
42.	Shounak Chakraborty	2015	JU	Awarded on 2017	Bioremediation of toxic pollutants from industrial wastewater.
43.	Arka Guha	2015	JU	Awarded on 2017	Studies in potential enzymatic degrading ability of isolated nitrogen fixing strains.
44.	Swati Das	2016	JU	To be awarded on 2018	Enzymatic bioremediation of industrial wastewater.
45.	Banashree Samanta	2016	JU	To be awarded on 2018	Seed Processing Using Membrane Technology

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Conference papers:

International:

134. **Chiranjib Bhattacharjee** and Siddhartha Datta, “In situ formation of gel layer within the boundary layer in case of continuous stirred ultrafiltration process”, accepted for presentation as research paper at 14th International Congress of Chemical and Process Engineering (CHISA-2000) held at Praha, CZECH Republic during August 27 – 31, 2000.
135. **Chiranjib Bhattacharjee** and Siddhartha Datta, “A numerical simulation for the prediction of flux and rejection during ultrafiltration in unstirred batch cell using variable diffusivity concept”, presented at 6th World Congress of Chemical Engineering held Melbourne, Australia during September 23 – 27, 2001 (ISBN 0 7340 2201 8).
136. **Chiranjib Bhattacharjee** and Siddhartha Datta, “A new model for the simulation of continuous stirred ultrafiltration process using turbulent back transport”, accepted for presentation at Regional Symposium on Chemical Engineering (RSCE) 2002 to be held in conjunction with 16th Symposium of Malaysian Chemical Engineers (SOMChE), Kuala Lumpur, MALAYSIA, during 28-30th October 2002.
137. Arijit Nath, Ayan Hore and **Chiranjib Bhattacharjee**, “Separation of Protein Molecules from Dairy Effluents by Ultrafiltration”, presented at International Conference on Modeling and Simulation (CITICOMS 2007), Coimbatore, 27-29 August 2007.
138. Ranjana Das, Santinath Ghosh and **Chiranjib Bhattacharjee**, “Processing of Mustard Protein Hydrolysate by Rotating Disk Ultrafiltration Module”, presented at 8th International Conference on Catalysis in Membrane Reactor (ICCMR-8) held at Central Glass & Ceramic Research Institute (CGCRI), Kolkata during December 18 – 21, 2007.
139. Arijit Nath, Ranjana Das and **Chiranjib Bhattacharjee**, “Separation and Purification of ovalbumin from chicken egg white by ultrafiltration”, presented at 8th International Conference on Catalysis in Membrane Reactor (ICCMR-8) held at Central Glass & Ceramic Research Institute (CGCRI), Kolkata during December 18 – 21, 2007.
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142. Ankur Sarkar, Dwaipayan Sen, **Chiranjib Bhattacharjee**, “Removal of chromium (VI) from tannery wastewater using polyacrylamide along with ferric chloride/alum: A case study”, presented at InDA – APDA International Conference on Desalination and Water Purification (InDAICON – 2010) held at Radisson GRT Hotel, Chennai during March 10 – 12, 2010.
143. Sujaya Bandyopadhyay, S. Pan, Ranjana Chowdhury, **Chiranjib Bhattacharjee**, “An useful byproduct from biodesulfurization by *Rhodococcus sp*”, presented at International conference

on environmental pollution, water conservation and health, held at Bangalore during 29th July-31st July 2010.

144. Arijit Nath, **Chiranjib Bhattacharjee**, Ranjana Chowdhury, “Studies on growth characteristics and removal of toxic heavy metals by newly isolated *Bacillus Sp.* (JUCHE1) in lab-scale batch reactor”, presented at International conference on environmental pollution, water conservation and health, held at Bangalore during 29th July-31st July 2010.
145. Arijit Nath, **Chiranjib Bhattacharjee**, Ranjana Chowdhury, “Utilization of whey: A two-fold solution to the dilemmas of zero-effluent disposal and biotechnological economy”, presented at International conference on environmental pollution, water conservation and health, held at Bangalore during 29th July-31st July 2010.
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150. Sujaya Bandyopadhyay, Ranjana Chowdhury, and **Chiranjib Bhattacharjee**, “Mathematical Modeling Of Production Of Bio-surfactant Through Bio-desulfurization Of Hydrotreated Diesel in A Fermenter”, AIP (American Institute of Physics), Conference Proceedings Volume 1298, pp. 232-237 (2010).
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153. A. Nath, S. Dutta, R. Chowdhury, **Chiranjib Bhattacharjee**, Micro and Macro-kinetics of Diauxic microbial growth in presence of Lactose and Glucose – Experimental and Modeling, World Biotechnology congress, Hyderabad, India, May 4, 2012.

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156. A. Nath, S. Chakraborty, **C. Bhattacharjee**, Batch Removal of Organic dyes from Aqueous Solution onto Water hyacinth (*Eichornia crassipes*) - Equilibrium, Kinetic and Sorption mechanism study, International Conference on Future Environment and Energy– ICREE 2013, Italy, Rome, February 24-25, 2012.
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161. A. Nath, **Chiranjib Bhattacharjee**, R. Chowdhury, An Experimental study on Separation of Biomolecules from Casein whey by rotating disk Ultrafiltration Membrane Module, 2nd Biotechnology World Congress, Dubai, February 18-21, 2013.
162. A. Nath, S. Chakraborty, **Chiranjib Bhattacharjee**, Biocatalytic Membrane Reactors: Advances in Biotechnology, International Porous and Powder Materials Symposium and Exhibition, Cesme Izmir, Turkey, September 3-6, 2013.
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166. Santanu Sarkar, Ranjana Das, Subhrojit Sarkar, **Chiranjib Bhattacharjee**, Adsorption study of CHDG on the surface of TiO₂ nano particles, International conference on nanotechnology (ICTN-2013), October 25-26th Haldia, India, Paper published in the proceedings, pp-40
167. Santanu Sarkar, Ankur Sarkar, Subhrojit Sarkar, Ranjana Das, **Chiranjib Bhattacharjee**, *Surface modification of membranes using nano particles to enhance membrane performance: A short review*, International Conference on Nanotechnology (ICTN-2013), October 25-26th Haldia, India, Paper published in the proceedings, pp-145
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174. Ranjana Das, Santanu Sarkar, **Chiranjib Bhattacharjee**, Application of Novel Ceramic Membrane for Waste Water Treatment', In Chemcon-2017, 27-30th December, 2017, Haldia Institute of Technology, Midnapore East, West Bengal, India.
175. Souptik Bhattacharya, Sanjukta Dasgupta, Sirsha Putatunda, Dwaipayan Sen, **Chiranjib Bhattacharjee** "Bioremediation of Used Motor Oil Found in Automobile Industry Effluent by Microbial & Enzymatic Pathway: A Review". "International Conference on Environment & Ecology (ICEE-2015)". March 2015, Kolkata, West Bengal.

176. Himadri Sekhar Samanta, Ratul Mitra Thakur, Khayati Arora, **Chiranjib Bhattacharjee** Green synthesis, characterization and catalytic activity of Ag NPs using *Mangifera indica* leaf extract 6th IconSWM 2016, November 24 - 26, 2016 at Jadavpur University, Kolkata, India
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