



### **Name & Contact detail**

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([https://scholar.google.ca/citations?view\\_op=list\\_works&hl=en&user=rw9MyNcAAAAJ](https://scholar.google.ca/citations?view_op=list_works&hl=en&user=rw9MyNcAAAAJ))

### **Academic qualifications:**

College/ university from which the degree was obtained	Abbreviation of the degree
Department of Chemical Engineering , Institute of Chemical Technology, Mumbai-400019 (UDCT)	Doctor of Philosophy (Technology) (1994-97)
University of Calcutta	Master of Technology (1992)

### **Position held/present status**

#### **Positions held/ holding:**

i) Rubber Technologist (1992-94, Industries), SRF for Ph.D. research (ICT, Mumbai 1994-97), Executive (Technology) (1997-2000, in Industry), ii) Lecturer (Dept of Polymer Science & Tech, CU , 2000-2004),iii) Sr Lecture (2004-2006), iv) Reader (2006-2009), v) Head of the Dept (2008-2010), vi) Associate Professor (2009-2012), vi) Professor (2012-till date), vii) Head of Dept (2015 July-2017 June), viii) Convener,

Research (Ph.D.) Advisory Committee , Dept of Polymer Sci. & Tech since 2016 (to till date), ix) Head of Dept. 2021 October-till date.

### **Research interests**

**Membrane based separation**, synthesis of functional and smart polymers, chelating resins with nano particles & its application for waste treatment and membrane based separation, modeling of experimental process data

**Research guidance** :Ph.D awarded 10 [**Dr. Sagar Ray, Dr. Nayan Ranjan Singha, Prof. (Dr.) Sunil Baran Kuila, Dr. Bidyadhar Mandal, Dr. Ruma Bhattacharya, Dr. Paramita Das, Dr. Himadri Sekhar Samanta , Dr. Jayabrata Maity, Dr. Mausumi Das , Dr Swastika Choudhury** (as single independent supervisor)

Thesis submitted and viva awaited : **Amritanshu Banerjee**

Ongoing registered Ph.D student: Amritanshu Banerjee, Bidyut Kumar Bhangi, Barnali Datta Ray, Debapriya Pyne, Nandini Choudhury

### **Projects-Completed/Ongoing**

- 1) Studies on Bioseparations By Pervaporation Membranes-UGC-Major-2004 completed 2007
- 2) Synthesis of pervaporation membranes by asymmetric incorporation of nano size fillers-2012- CRNN, University of Calcutta completed 2014
- 3) Synthesis of Ceramic-Polymer Composite Membranes For Pervaporative Separation, DST- SERCSR/S3/CE/056/2009 dtd 16.09.2009-Completed 2013
- 4) Studies on removal of toxic heavy metal ions from water using polymeric hydrogel, CSIR-EMR22(0547) /11/EMR-II , date **06.06.2011** –Completed 2015
- 5) Study on pervaporative stripping of acetone, butanol and ethanol (ABE) for improved ABE fermentation DBT NO. BT/PR5757/PID/6/709/2012 completed 2017
- 6) Pervaporative Desulfurization of Gasoline by using novel polymer membranes of Sanction number 22/0746/17/EMRII, dated 10/10/2017 -ongoing

**Completed projects : 5 (UGC-major, DST-SERC, CSIR, DBT, CU) , ongoing- one CSIR**

**Ongoing -1 (CSIR-EMR-II)**

### **Publication in International Journals**

- 1) **Ray, S.K., Sawant, S.B., Joshi, J.B. and Pangarkar, V.G,** ‘ Perstraction of Phenolic Compounds. from aqueous solution Using a Nonporous Membrane’,

- Separation Science and Technology*, **32(16)**, **1997**, 2669-2683 (**Publisher: Taylor Francis**)
- 2) **Ray, S.K.**, Sawant, S.B., Joshi, J.B. and Pangarkar, V.G. 'Dehydration of acetic acid by pervaporation', *J.Membr. Sci.*, **138**, **1998**, 1-17 (**Publisher: Elsevier**)
- 3) **Samit K. Ray**, Sudhir B. Sawant, Jyestharaj B. Joshi, and Viswas G. Pangarkar 'Development of new synthetic membranes for separation of benzene-cyclohexane mixture by pervaporation-A solubility parameter approach' *Ind.Eng.Chem.Res.*, **36**, **1997**, 5265-5276 (**Publisher: American chemical society**)
- 4) **Ray, S.K.**, Sawant, S.B., Joshi, J.B. and Pangarkar V.G 'Methanol selective membranes for separation of Methanol-Ethylene glycol mixtures by pervaporation', *J. Membrane Science*', **154**, **1999**, 1-13 (**Publisher: Elsevier**)
- 5) **Samit K. Ray**, Sudhir B. Sawant and Viswas G. Pangarkar 'Separation of Methyl-tert-butyl alcohol (MTBE)-Methanol mixtures by pervaporation', *J.Appl.Poly. Sci.*, **74**, 2645-2659, **1999** (**Publisher: John Wiley**)
- 6) S. Ray and **S. K. Ray** "Dehydration Of Acetic Acid, Alcohols And Acetone By Pervaporation Using Acrylonitrile-Maleic Anhydride Co-Polymer Membrane". *Sep. Sci and Technol.* **40**, **2005**, 1583-1596. **Publisher: Taylor Francis**

7) S. Ray and **S. K. Ray**; “Effect of copolymer type and composition on separation characteristics of pervaporation membranes - A case study with separation of acetone-water mixtures”. *J. Membr.Sci.* 270, **2006**, 73-87 (**Publisher: Elsevier**)

8) S. Ray and **S. K. Ray**; “Separation of Organic Mixtures by Pervaporation using crosslinked Rubber Membranes”. *J. Membr. Sci.* 270, **2006**, 132-145. (**Publisher: Elsevier**)

9) S. Ray and **S. K. Ray**; “Synthesis of highly Methanol Selective Membranes for Separation of Methyl tertiary butyl ether (MTBE) -Methanol Mixtures by Pervaporation” *J. Membr.Sci.* 278(**2006**), 279-289 (**Publisher: Elsevier**)

10) S. Ray and **S. K. Ray**; “Permeation studies of Tetrahydrofuran-water mixtures by Pervaporation Experiments”. *Sep. and Purific. Technol.* 50(**2006**), 156-160 (**Publisher: Elsevier**)

11) B.B.Konar, **S.K.Ray** and P.B.Konar, Studies On Interfacial Adhesion, Tensile And Thermal Characteristics In Blends Of Polystyrene / Novalac Resin, *J.Appl. Polymer Sci.* Vol. 102, 4630–4636 (2006) **Publisher: John Wiley**)

12) S. Ray and **S. K. Ray**, “Synthesis of highly selective copolymer membranes and their application for the dehydration of tetrahydrofuran by pervaporation” *J. Appl. Polym. Sci.*, Volume 103, Issue 2, Pages 728 – 737, **2006 Publisher: John Wiley**)

13) S. Ray and **S. K. Ray**, “Separation of organic mixtures by pervaporation using crosslinked and filled rubber membranes” ‘J. Membrane Sci.’ 285,( **2006**), 108-119

**(Publisher: Elsevier)**

14) S. Ray and **S. K. Ray** Dehydration of DMF by pervaporation’, *Ind. and Eng. Chem. Res.* **2006**,45,7210-7218 **(Publisher: American chemical society)**

15) S. Ray and **S. K. Ray**, “Dehydration of tetrahydrofuran (THF) by pervaporation using crosslinked copolymer membranes” *Chemical Engineering and Processing: Process Intensification* 47(**2008**) 1620-1630 **(Publisher: Elsevier)**

16) S. Ray, N.R.Singha and **S. K. Ray**, “Removal of tetrahydrofuran (THF) from water by pervaporation using homo and blend polymeric membranes”, *Chemical Engineering Journal*, 149 (**2009**) 153–161 **(Publisher: Elsevier)**

17) N.R. Singha, S.Kar, **S.K.Ray**, Synthesis of chemically modified polyvinyl alcohol membranes for Dehydration of Dioxane by Pervaporation, *Sep. Sci. and technol.* 44: 422–446, **2009** **Publisher: Taylor Francis**

18) N.R.Singha, S.Kar, S.Ray, **S.K.Ray**, Separation of Isopropyl alcohol-water mixtures by Pervaporation using crosslink IPN membranes, *Chemical Engineering and Processing: Process Intensification* 48 (2009) 1020–1029 (**Publisher: Elsevier**)

19) N.R. Singha, S.Kar, **S.K.Ray**, Synthesis of Novel polymeric membrane for separation of MTBE-methanol by Pervaporation, , *Sep. Sci. and technol*, 44: 1–21, 2009  
**Publisher: Taylor Francis**

20) N.R. Singha, T.K.Parya , **S.K.Ray**, Dehydration of 1,4-Dioxane By Pervaporation Using Filled and crosslinked Polyvinyl alcohol Membrane, *J. Membr. Sci.*, 340 (2009) 35–44 (**Publisher: Elsevier**)

21) N.R. Singha, S.B. Kuila, Paramita Das, **S.K.Ray**, ‘Separation of toluene–methanol mixtures by pervaporation using crosslink IPN membranes’, *Chemical Engineering and Processing: Process Intensification* 48 (2009) 1560–1565 (**Publisher: Elsevier**)

22) B.B.Konar, S.K.Ray, T.K.Parya, Study on the effect of nano & active particles of aluminum on natural rubber-alumina composites in presence of epoxides natural rubber as compatibiliser, *J. Macromol. Sc. Part A Pure & Applied Chem* in press(**Taylor & Francis**).2010

23) N.R. Singha, **S.K.Ray**, Separation of toluene-methanol mixtures by Pervaporation using semi-IPN polymer membranes, *Sep. Sci. and Technol.*, 45: 2298–2307, **2010**

**Publisher: Taylor Francis**

24) N.R.Singha, , S.Ray, **S.K.Ray**, Removal of pyridine from water by Pervaporation using filled SBR, membranes *Journal of Applied Polymer Science*, 121, **2011**, 1330–

1334 **Publisher: John Wiley)**

25) S.B. Kuila, **S.K. Ray**, Paramita Das, N.R. Singha, Synthesis of full interpenetrating network membranes of poly(acrylic acid-co-acrylamide) in the matrix of polyvinyl alcohol for dehydration of ethylene glycol by pervaporation, *Chemical Engineering and Processing: Process Intensification* 50(4) (**2011**) 391-403 (**Publisher: Elsevier**)

26) Paramita Das, **S.K. Ray**, S.B. Kuila, H.S. Samanta, N.R. Singha, Systematic choice of crosslinker and filler for pervaporation membrane –A case study with dehydration of isopropyl alcohol-water mixtures by polyvinyl alcohol membranes, **Sep.&Purif. Tech.**

81 (**2011**) 159–173 (**Publisher: Elsevier**)

27) S.B. Kuila , **S.K. Ray**, Dehydration of acetic acid by pervaporation using filled IPN membranes, **Sep.&Purif. Tech.**, 81 (**2011**) 295–306 (**Publisher: Elsevier**)

28) Bidyadhar Mandal,, **Samit Kumar Ray**, Ruma Bhattacharyya, Synthesis of Full and Semiinterpenetrating Hydrogel from Polyvinyl Alcohol and Poly (acrylic

Acid-co-Hydroxyethylmethacrylate) Copolymer: Study of Swelling Behavior, Network Parameters, and Dye Uptake Properties, **Journal of Applied Polymer Science**

124,(**2012**)2250–2268**Publisher: John Wiley)**

29) N.R.Singha, **S.K.Ray**, Removal of Pyridine From Water By Pervaporation Using Crosslinked And Filled Natural Rubber Membranes, **Journal of Applied Polymer Science** 124 (2012) 99–107 (**Publisher: John Wiley**)

30) H. S. Samanta, **S.K.Ray**, Paramita Das, N. R. Singha,, Separation of acid-water mixtures by pervaporation using nano particle filled mixed matrix copolymer membranes, **Journal of Chemical Technology and Biotechnology** 87(2012)608–622 (**Publisher: John Wiley**)

31) S.B.Kuila, **S.K.Ray**, Sorption and Permeation studies of Tetrahydrofuran -water mixtures using Full Interpenetrating Network membranes, **Sep.&Purif. Tech.** 89 (2012) 39–50 (**Publisher: Elsevier**)

32) B.Mandal, S.K. Ray, Synthesis of interpenetrating network hydrogel from poly (acrylic acid-cohydroxyethyl methacrylate) and sodium alginate: Modeling and Kinetics study for removal of synthetic dyes from water, **Carbohydrate Polymer** 98(2013) 257-269. (Elsevier)

33) R.Bhattacharyya, S.K. Ray, Kinetic and equilibrium modeling for adsorption of textile dyes in aqueous solutions by carboxymethyl cellulose/ poly ( acrylamide-co-hydroxyethyl methacrylate) semi interpenetrating network hydrogel. **Polymer Engineering & Science** 53 (11)(2013) 2439-2453. **Wiley**



- 34) R.Bhattacharyya, S. K.Ray, B. Mandal, A systematic method of synthesizing composite superabsorbent hydrogels from crosslink copolymer for removal of textile dyes from water, *Journal of Industrial and Engineering Chemistry*, 19 (**2013**) 1191–1203. (Elsevier)
- 35) Nayan Ranjan Singha, Paramita Das, Samit Kumar Ray, Recovery of pyridine from water by pervaporation using filled and crosslinked EPDM membranes, *Journal of Industrial and Engineering Chemistry* 19 (**2013**) 2034–2045. (Elsevier)
- 36) Paramita Das, S.K. Ray , Analysis of sorption and permeation of acetic acid–water mixtures through unfilled and filled blend membranes, *Separation and Purification Technology* 116 (**2013**) 433–447 (Elsevier).
- 37) S.B. Kuila , S.K. Ray, Separation of isopropyl alcohol–water mixtures by pervaporation using copolymer membrane: Analysis of sorption and permeation, *Chemical engineering research and design* 9 1 ( **2 0 1 3** ) 377–388 (Elsevier).
- 38) Sunil B. Kuila, Samit K. Ray, Sorption and Permeation of Acetic Acid–Water Mixtures by Pervaporation Using Copolymer Membrane, *Polymer Engineering & science* 53(5)(**2013**)1 073–1084 (wiley).
- 39) Himadri Sekhar Samanta, Samit Kumar Ray, Synthesis, characterization, swelling and drug release behavior of semi-interpenetrating network hydrogels of sodium alginate and polyacrylamide, *Carbohydrate Polymers* 99 (**2014**) 666– 678. (Elsevier)
- 40) S.B. Kuila , S.K. Ray , Dehydration of dioxane by pervaporation using filled blend membranes of polyvinyl alcohol and sodium alginate, *Carbohydrate Polymers* 101 (**2014**) 1154– 1165. (Elsevier)

- 41) Paramita Das, S.K. Ray, Synthesis and characterization of biopolymer based mixed matrix membranes for pervaporative dehydration, *Carbohydrate Polymers*, 103C (2014) 274-284, (Elsevier)
- 42) S.B. Kuila , S.K. Ray, Separation of benzene-cyclohexane mixtures by filled blend membranes of carboxymethyl cellulose and sodium alginate, *Separation and Purification Technology*, 123C (2014) 45-52(Elsevier)
- 43) Jayabrata Maity, Samit Kumar Ray, Enhanced adsorption of methyl violet and congo red by using semi and full IPN of polymethacrylic acid and chitosan, *Carbohydrate Polymers*, 104C (2014) 8-16 (Elsevier)
- 44) Himadri Sekhar Samanta, Samit Kumar Ray, Controlled release of tinidazole and theophylline from chitosan based composite hydrogels, 10.1016/j.carbpol.2014.01.097, *Carbohydrate Polymers* 106 (2014) 109-120 (Elsevier) .
- 45) Ruma .Bhattacharyya, Samit Kumar Ray, Enhanced adsorption of synthetic dyes from aqueous solution by a semi-interpenetrating network hydrogel based on starch, *Journal of Industrial and Engineering Chemistry*, 20(5) (2014)3714-3725 (Elsevier)
- 46) B.Mandal, S.K. Ray , Swelling, Diffusion, Network parameters and adsorption properties of IPN hydrogel of chitosan and acrylic copolymer, *Materials Science and Engineering C*, 44 (2014) 132–143 (Elsevier)
- 47) Ruma .Bhattacharyya, Samit Kumar Ray, Micro- and nano-sized bentonite filled composite superabsorbents of chitosan and acrylic copolymer for removal of synthetic dyes from water, *Applied Clay Science* (Elsevier), 101 (2014) 510–520.

- 48) Ruma .Bhattacharyya, Samit Kumar Ray, Adsorption of industrial dyes by Semi-IPN hydrogels of Acrylic copolymers and sodium alginate, Journal of Industrial and Engineering Chemistry, 22 (2015) 92-102 (Elsevier)
- 49) Ruma .Bhattacharyya, Samit Kumar Ray, Removal of Congo red and Methyl violet from water using nano clay filled composite hydrogels of poly acrylic acid and polyethylene glycol , Chemical Engineering Journal, 260 (2015) 269–283 (Elsevier)
- 50) Himadri Sekhar Samanta, Samit Kumar Ray, Pervaporative recovery of acetone from water using mixed matrix blend membranes, Separation and Purification Technology, 143 (2015) 52–63 (Elsevier).
- 51) Himadri Sekhar Samanta, Samit Kumar Ray, Separation of ethanol from water by pervaporation using mixed matrix copolymer membranes, Separation and Purification Technology, 146 (2015) 176-186 (Elsevier)
- 52) Bidyadhar Mandal, Samit Kumar Ray , Synthesis, characterization, swelling and dye adsorption properties of starch incorporated acrylic gels, International Journal of Biological Macromolecules, 81 (2015) 847-857(Elsevier).
- 53) Bidyadhar Mandal, Samit Kumar Ray, Removal of safranin T and brilliant cresyl blue dyes from water by carboxy methyl cellulose incorporated acrylic hydrogels: Isotherms, kinetics and thermodynamic study, Journal of the Taiwan Institute of Chemical Engineers, 60 (2016)313-327 (Elsevier)

- 54) Paramita Das, Samit Kumar Ray, Pervaporative recovery of tetrahydrofuran from water with plasticized and filled polyvinylchloride membranes, *Journal of Industrial and Engineering Chemistry*, 34 (2016) 321-336 (Elsevier)
- 55) Paramita Das, Samit Kumar Ray, Synthesis of highly water selective copolymer membranes for pervaporative dehydration of acetonitrile, *Journal of Membrane Science*, 507 (2016) 81-89. (Elsevier)
- 56) Paramita Das, Samit Kumar Ray, Separation of toluene-methanol mixtures by pervaporation using filled elastomeric membranes, *Journal of the Taiwan Institute of Chemical Engineers*, 64 (2016) 89-105 (Elsevier)
- 57) Jayabrata Maity, Samit Kumar Ray, Enhanced adsorption of Cr (VI) from water by guar gum based composite hydrogels, *International Journal of Biological Macromolecules*, 89 (2016) 246-255 (Elsevier).
- 58) Jayabrata Maity, Samit Kumar Ray, Removal of Cu (II) ion from water using sugar cane bagasse cellulose and gelatin based composite hydrogels *International Journal of Biological Macromolecules*, 97 (2017) 238–248 (Elsevier).
- 59) Swastika Choudhury, Samit Kumar Ray, Filled copolymer membranes for pervaporative dehydration of ethanol-water mixture, *Separation and Purification Technology*, 179 (2017) 335-348 (Elsevier)
- 60) Jayabrata Maity and Samit Kumar Ray, Competitive Removal of Cu(II) and Cd(II) from Water Using a Biocomposite Hydrogel, *J. Phys. Chem. B*, 2017, 121 (48), pp 10988–11001 (ACS)

- 61) Jayrata Maity, Samit Kumar Ray, Removal of Pb(II) from water using a bio-composite adsorbent-A systematic approach of optimizing synthesis and process parameters by response surface methodology, *Journal of Environmental Management*, 209 (2018) 112-125 (Elsevier)
- 62) Jayrata Maity, Samit Kumar Ray, Chitosan based nano composite adsorbent—Synthesis, characterization and application for adsorption of binary mixtures of Pb(II) and Cd(II) from water, *Carbohydrate Polymers*, 182 (2018) 159-171. (Elsevier)
- 63) Swastika Choudhury, Efficient removal of cationic dye mixtures from water using a bio-composite adsorbent optimized with response surface methodology, *Carbohydrate Polymers*, 182 (2018) 159-171. (Elsevier)
- 64) Amritanshu Banerjee, Samit Kumar Ray, PVA modified filled copolymer membranes for pervaporative dehydration of acetic acid-systematic optimization of synthesis and process parameters with response surface methodology, *Journal of Membrane Science* , 549 (2018) 84-100. (Elsevier)
- 65) Swastika Choudhury, Samit Kumar Ray, Analysis of Sorption and Permeation of Acetonitrile–Water Mixtures through Nanoclay-Filled Copolymer Membranes, *Ind. Eng. Chem. Res.*, 2019, 58 (11), pp 4581–4597 (ACS)
- 66) Bidyut Kumar Bhangui, Samit Kumar Ray, Nano silver chloride and alginate incorporated composite copolymer adsorbent for adsorption of a synthetic dye from water in a fixed bed column and its photocatalytic reduction, *International Journal of Biological Macromolecules* 144 (2020)801-812 (Elsevier)
- 67) Amritanshu Banerjee, Samit Kumar Ray , Synthesis of novel composite membranes by in-situ intercalative emulsion polymerization for separation of aromatic-aliphatic mixtures by pervaporation, *Journal of Membrane Science* , 597 (2020) 117729. (Elsevier)
- 68) Swastika Choudhury, Samit Kumar Ray , Synthesis of polymer nanoparticles based highly selective membranes by mini-emulsion polymerization for dehydration of 1,4 dioxane and recovery of ethanol from water by pervaporation, *Journal of Membrane Science* , 617(2021) 118646(Elsevier)
- 69) Swastika Choudhury, Samit Kumar Ray Poly(4-vinylpyridine) and poly(vinyl acetate – co-4-vinylpyridine) grafted polyvinyl chloride membranes for removal of tetrahydrofuran from water by pervaporation, *Separation & Purification Technology* , 254(2021) 117618(Elsevier)
- 70)Amritanshu Banerjee, Samit Kumar Ray , Synthesis of chitosan grafted polymethyl methacrylate nanoparticles and its effect on polyvinyl chloride membrane for acetone recovery by pervaporation, *Carbohydrate Polymer*, 258 (2021) 117704, Elsevier
- 71)Himadri Sekhar Samanta, Samit Kumar Ray, Effect of pectin and attapulgitite filler on swelling, network parameters and controlled release of diltiazem hydrochloride from

polyacrylic copolymer gel, *International Journal of Biological Macromolecules*, 190(2021)978-988. (Elsevier)

72) Himadri Sekhar Samanta, Samit Kumar Ray, Synthesis of interpenetrating network (IPN) hydrogels based on acrylic acid (AAc) and guar gum and its application as drug delivery for pyridoxine hydrochloride (vitamin B6), *Journal of Polymer Research*, 28(2021)479 Springer, DOI 10.1007/s10965-021-02848-9

73) Swastika Choudhury, Samit Kumar Ray, Sorption thermodynamics and coupling effect for pervaporative dehydration of acetone through nano clay and iron nano particle filled copolymer membranes, *Korean Journal of Chemical Engineering*, 39, 529–547 (2022)

74) Himadri Sekhar Samanta, Samit Kumar Ray, Effect of polyethylene glycol and nano clay on swelling, diffusion, network parameters and drug release behavior of interpenetrating network copolymer, *Journal of Applied Polymer Science*, 139(8) (2022)51678  
DOI: 10.1002/app.51678, Wiley

75) Bidyut Kumar Bhanghi, Samit Kumar Ray, Synthesis of Cu nanoparticles in a chitosan entrapped copolymer matrix for photocatalytic reduction of textile dye and column adsorption of heavy metal ions from water, *Polymer Engineering Science*, 62(5) (2022) 1399-1415

#### **Book Chapter (invited)**

1) V.G. Pangarkar, Samit Kumar Ray, PERVAPORATION: THEORY, PRACTICE AND APPLICATIONS IN THE CHEMICAL AND ALLIED INDUSTRIES in *Handbook of Membrane Separations Chemical, Pharmaceutical, Food, and Biotechnological Applications*, Editor Anil K. Pabby Syed S. H. Rizvi, Ana Maria Sastre, CRC Press **Taylor & Francis**, Boca Raton London New York, 2018

2) Samit Kumar Ray, Amritanshu Banerjee, Swastika Choudhury, Debapriya Pyne, 10-Nano metal and metal oxide based polymer nanocomposite membranes for pervaporation in *Polymer Nano composite membranes for Pervaporation*, 2020, 231-262 (**Elsevier**)

3) V.G. Pangarkar, Samit Kumar Ray, Chapter on Pervaporation in, Kirk-Othmer *Encyclopedia of Chemical Technology*, KOE-20-0008  
[doi.org/10.1002/0471238961.1605182223251414.a01.pub3](https://doi.org/10.1002/0471238961.1605182223251414.a01.pub3), 2020, Wiley

4) Ray, S.K., Banerjee, A., Bhanghi, B.K., Dutta, B., Pyne, D. (2022). Synthesis, Properties and Applications of Polymeric Matrix-Based Phosphor Hybrids. In: Upadhyay, K., Thomas, S., Tamrakar, R.K. (eds) *Hybrid Phosphor Materials*. Engineering Materials. Springer, Cham. [https://doi.org/10.1007/978-3-030-90506-4\\_7](https://doi.org/10.1007/978-3-030-90506-4_7), pp 165–192, 2022

5) Samit Kumar Ray, Amritanshu Banerjee, Bidyut Kumar Bhanghi, Debapriya Pyne, Barnali Dutta Tribological analysis –General test standards, Chapter 2 in [Tribology of Polymers, Polymer Composites, and Polymer Nanocomposites](#), in process, (Elsevier)

6) Samit Kumar Ray, Chapter on Hydrogel, in **Kirk-Othmer Encyclopedia of Chemical Technology**, invited and in process (**Wiley**).

7) Samit Kumar Ray , PVC/Polystyrene blends, IPNs and gels in Poly(vinyl chloride) based blends, IPNs and gels" (Elsevier), just invited.

8) Samit Kumar Ray, Chapter on Membrane, in **Encyclopedia of Polymer Science & Technology**, invited and in process (**Wiley**).

**Some of the papers based on Conference/workshop/invited lectures are pasted below**

1. Development of ultrafiltration membranes of various molecular weights cut off (MWCO) and its application in water treatment (paper no. MAE 19, page-91), Matcon 2001, (2<sup>nd</sup> March, 2001, Dept of Applied chemistry

Cochin Univ., Kerala

2. Studies on synthesis of methanol selective polymeric membranes and its application in sorption and permeation of methanol-ethylene glycol mixtures, International symposium on material chemistry, , 4-8 Dec. 2006, BARC, Mumbai Page 15 of 5

3. Synthesis of water treatment polymer (paper no.AEC (OP)-34, page-D13, Annual meeting of Indian Chem.Soc. (AEC), Indian Chemical Society
4. Preparation of Chloroprene based Cold adhesive (paper no.IAC (OP)-10,page-E4, Annual meeting of Indian Chem.Soc. (AEC)
5. Selection of polymers for making pervaporation membranes (paper no. TSM-063, PAGE-46), Annual session of IICE (CHEMCON-2001), Indian institute of Chemical Engineer,Chennai
6. Dehydration of alcohols by Pervaporation (P.1.2), Frontier of Polymer Science & Engineering Macro-2002, IIT Kharagpur
7. Synthesis of Blend polymeric membranes for VOC removal from aqueous waste ICEM, International conference on environmental management (ICEM) Hyderabad 28-30 Oct., 2005
8. Water treatment by polymeric membranes-a case study with removal of acetone from water by pervaporation, International congress of chemistry and environment, ICCE-2005,Indore
9. Dehydration of tetrahydrofuran (THF) by highly selective pervaporation membrane, Chemcon-2005
10. Pervaporative bioseparation by polymeric membrane, 13 th state sci.& Tech congress 28<sup>th</sup> Feb. to 1<sup>st</sup> March 2006,
12. Studies on synthesis of methanol selective polymeric membranes and its application in sorption and permeation of methanol-ethylene glycol, Chemical Engineering & Environment,;
13. Separation of benzene-cyclohexane mixtures by pervaporation, Chemcon 2006
14. Empowering business entities through IPR, International intellectual property rights (IPR) conference 8-9 Jan. 2009, Hotel Taj Bengal Kolkata
15. Synthesis and swelling properties of hydrogel based on Chitosan and poly(methacrylic acid) semi interpenetrating polymer network,Paper No. MP16 page 144 (material science)
16. Pollution from plastics and its prevention, Workshop, Govt college of Eng. & Ceramic Tech, Kolkata TEQIP, 15/9/07, invited talk
17. Solid waste management, Dept of Chemical Technology, Invited talk
18. Micro and nano particle filled mixed matrix membranes for pervaporative separation, International Conference on Nanotechnology (ICNT - 2013), invited lecture
19. Composite membranes For Pervaporative Separation, International Conference on Composites and Nanocomposites (ICNC – 2011) invited lectures
20. Membrane separation and its application in Industry, Membrane-2007, invited lecture