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Permanent Address: Mayachar, Midnapur, West Bengal, Pin-721649.
Educational Qualifications: PhD[IIT, Kharagpur, 1996], M.Tech.[Calcutta University 1992], B.Tech.[Calcutta University 1990].

Areas of Research Interest

Polymer Engineering and Technology; Nanostructure materials and composite; Separation Science & Technology; Catalytic water treatment.

Subjects Taught

B. Tech	Chemical Engineering Thermodynamics, Chemical Process Calculations, Polymer Engineering, Polymer Characterization, Engineering Polymers, Polymer Processing, Polymer Product Design, Mass Transfer operations, Heat Transfer Operations, Chemical Reaction Engineering
M. Tech	Modern Separation Technology, Advanced Chemical Engineering Thermodynamics, Fundamentals of Nanotechnology
PhD	Research Methodology and Data Analyses

Research Supervision

On Going Ph.D Works

- Synthesis and characterization of Low molecular weight perfluoropolyethers.
- Development of Smart Polymeric Membrane for Ultrafiltration Process.
- Catalytic Degradation and Removal of Secondary effluents from waste water.
- Development of Electromagnetic Composite Materials.
- Development of Magnetic Nanoparticles through solvothermal Process for Biological Applications.

Ph.D Thesis Completed:

- "Design, Fabrication and Development of Polyaniline based Polymeric Nanocomposite Containing TiO₂ /SnO₂ and PVA for Environmental and Energy Applications."
- "Development of Thermoresponsive hydrogels for Controlled drug release characteristics".
- "Synthesis and Characterization of Nanopolymers by Microemulsion".
- "Synthesis and Characterization of Nanoparticles by Microemulsion".
- "Synthesis and Characterization of Magnetic Nanoparticles".

M. Tech Project Supervision:

Continuing: 1

Completed: 10

Recent Publications in International Journals

- Mandal U.K., Bikramjit Kaur and Tanwar Ruchika, Highly Efficient and Visible Light Driven Ni_{0.5}Zn_{0.5}Fe₂O₄@PANI doped BiOCl Heterocomposite Catalyst for Water Remediation" by, Applied Catalysis B: Environmental, 211, 305-322(2017),Elsevier Sci. Ltd. UK.
- Mandal U.K., Sanjeev Kumar and Tanwar Ruchika, Photocatalytic Activity of PANI/Fe₀ doped BiOCl under Visible Light-Degradation of Congo red Dye, Journal of Photochemistry & Photobiology, A: Chemistry, 333, 105-116 (2017), Elsevier Sci. Ltd. UK.

- Mandal U.K., Saikia A. K., Kaur Bikramjit and Kumar Dinesh, Tuneable thermoresponsive hybrid magnetic nanoparticles: preparation, characterization and drug release characteristics, 92, 1006-1016(2017), Society of Chemical Industries, Wiley.
- Utam Kumar Mandal, Rajeev Arora, Pankaj Sharma, Anupam Srivastav, TiO₂/PANI nanocomposite loaded in PVA for anticorrosive applications, Materials Science-Poland, 34(4):721-725(2016), Springer.
- Mandal U.K., Saikia A.K., and Aggarwal S, Electrically induced swelling and methylene blue release behaviour of poly(N-isopropyl acrylamide-co-acrylamido-2-methylpropyl sulphonic acid) hydrogels. Colloid Polym Sci **293**:3533–3544 (2015), Springer, Netherland.
- Mandal U.K., Kumar Sanjeev, Singh V and Kotnala R. K Nanocrystalline Co_{0.5}Zn_{0.5}Fe₂O₄ ferrite: Synthesis, characterization and study of their magnetic behavior at different temperatures, Inorganica Chimica Acta 428, 21(2015), Elsevier Sci. Ltd., UK.
- Mandal U.K., Kumar Sanjeev, Singh V, Kotnala R. K. and Aggarwal S, Synthesis, characterization and magnetic properties of monodisperse Ni, Zn ferrite nanocrystals Journal of Magnetism and Magnetic Materials 379, 50(2015), 50–57 Elsevier Sci. Ltd., UK.
- Utam Kumar Mandal, Rajeev Arora, Pankaj Sharma, AnupamSrivastav, Synthesis and Thermal Properties of Polyaniline TiO₂nanocomposites PVA Based Film, Materials Today: Proceedings 2215 – 22252 (2015), Elsevier Sci. Ltd., UK.
- Utam Kumar Mandal, Rajeev Arora, Pankaj Sharma, Anupam Srivastav, TiO₂ and PVA based Polyaniline Composite materials-A Review, Materials Today: Proceedings 2767 – 27752 (2015), Elsevier Sci. Ltd., UK.

Recent Conference Presentations:

- “Enhanced Visible Light Photocatalytic Degradation of Toxic dyes on BiOCl modified by Ferrite-Polymer” R. Tanwar and U. K. Mandal, International Conference on Advances in Catalysis for Energy and Environment at TIFR, Mumbai from 10th -12th Jan’2018.
- “Polyaniline Activated Ni_{0.5}Zn_{0.5}Fe₂O₄ Nanocatalyst – An efficient magnetically recyclable catalyst for degradation of Azo dye” Abhilasha Pant, R Tanwar, Bikramjit Kaur and U. K. Mandal has been presented in International Conference on Advanced

Nanomaterials and Nanotechnology(ICANN 2017) held at IIT Guwahati during December 18-21st , **2017**.

- “Synthesis, Characterization and Catalytic application of a magnetic nanocatalyst: Polyaniline/Nickel-Zinc Ferrite” R. Tanwar and U. K. Mandal, presented in International Conference on Green Chemistry at Delhi University from 3rd -4th Oct’ **2017**.
- Dinesh Kumar, A. K. Saikia, Bikramjit Kaur, and Uttam Kumar MandalThermoresponsive PEG-g-PNIPAM coated Ni_{0.5}Zn_{0.5}Fe₂O₄ magnetic hydrogel – synthesis and characterization, presented in International conference on materials science and technology, ICMTECH 2016, Delhi, India, 1-4th March, **2016**.
- Dinesh Kumar, A. K. Saikia, Bikramjit Kaur, and Uttam Kumar Mandal, PNIPAM coated Ni_{0.5}Zn_{0.5} Fe₃O₄ thermosensitive magnetic hydrogels: synthesis, characterisation and protein adsorption International conference on nanostructured polymeric materials and polymer nanocomposites, ICNPM 2015, Kerala, India, 13-15thNovember **2015**.
- Mandal U K, A K Saikia, Development of Thermally Responsive Copolymers for Biomedical Applications, Invited lecture in an International Conference & Expo on Recent Advances in Polymer & Rubber Science & Technology(RAPT-2014), Department of Polymer Science and Technology, University of Calcutta, 22-23rd January, **2014**.

Books:



- **DESIGN AND DEVELOPMENT OF TEMPERATURE AND ELECTRIC FIELD RESPONSIVE HYDROGELS FOR BIOMEDICAL APPLICATIONS** by Uttam Kumar Mandal, Saroj Aggarwal, Ajoy Kumar Saikia, **LAP LAMBERT Academic Publishing, Germany, (2016), ISBN: 978-3-330-00538-9.**



- **SYNTHESIS AND CHARACTERIZATION OF NANOPOLYMERS BY MICROEMULSION** by Uttam Kumar Mandal, Pallavi Bhardwaj , Saroj Aggarwal, **LAP LAMBERT Academic Publishing, Germany, (9 Feb 2012), ISBN-10: 3847349708 ISBN-13: 978-3847349709.**

Other Publications in International Journals

- Utam Kumar Mandal, Rajeev Arora, , Pankaj Sharma, Anupam Srivastav, Effect of fabrication technique on microstructure and electrical conductivity of polyanilineTiO₂-PVA composite material Procedia Materials Science, 6, 238(**2014**), Elsevier Sci. Ltd., UK.
- Mandal U. K. Saikia A. K. & Aggarwal Saroj, Swelling dynamics of poly(NIPAMco-AMPS) hydrogels synthesized using PEG as macroinitiator: effect of AMPS content, Journal of Polymer Research, 20,31(**2013**), Springer, Netherland.
- Mandal U.K., Kumar Sanjeev, Singh V, Kotnala R. K. and Aggarwal S, Monodisperse Co, Zn-Ferrite nanocrystals: Controlled synthesis, characterization and magnetic properties, Journal of Magnetism and Magnetic Materials, 324, 3683(**2012**), Elsevier Sci. Ltd., UK.
- Mandal U. K. Saikia A. K. & Aggarwal Saroj, Preparation and Controlled Drug Release Characteristics of Thermoresponsive PEG/Poly (NIPAM-Co-AMPS) Hydrog, International Journal of polymeric Materials, 62, 39(**2013**), Taylor & Francies, UK.
- Mandal U. K. Saikia A. K. & Aggarwal Saroj, Network structure and temperature dependence swelling behavior of PEG-b-Poly (NIPAM-co-AMPSA) hydrogels in water, Journal of Polymer Research, 19, 9871(**2012**), Springer, Netherland.

- Mandal U.K., Pallavi Bhardwaj, Vaishali Singh and Saroj Aggarwal, Untreated Silica Nanoparticles Containing Poly(acrylamide-co-2-acrylamido-2-methyl-1-propane sulfonic acid) Composite—Effect of Copolymer Composition, *Polymer-Plastics Technology and Engineering*, 51,1038(2012),Taylor &Francis, UK.
- Mandal U. K, Singh G, Kaur N, Bajpai P K, and Bhunia H, Degradation Behaviours of LLDPE and PLA Blends, *J. Appl. Polym. Science*, 124, 1993(2012), Wiley.
- Mandal U.K., Kumar Sanjeev, Singh V, Kotnala R. K. and Aggarwal S, Influence of Processing Methodology on Magnetic Behavior of Multicomponent Ferrite, *J. Phys. Chem. C* 114, 6272-6280 (2010), American Chemical Society.
- Mandal U.K., Pallavi Bhardwaj, Vaishali Singh and Saroj Aggarwal, Polyacrylamide and poly (acrylamide-co-2-acrylamido-2-methyl-1-propanesulfonic acid) - silica composite nanogels through in situ microemulsion polymerization, *J Mater Sci.*, 45,1008-1016(2010), Springer, Netherland.
- Mandal U.K., Kumar Sanjeev, Singh V, Kotnala R. K. and Aggarwal S, Synthesis of nanocrystalline Ni_{0.5}Zn_{0.5} Fe₂O₄ ferrite and study of its magnetic behavior at different temperatures, *Materials Science and Engineering B* 76–82, 166 (2010), Elsevier Sci. Ltd., UK.
- Mandal U.K., Kumar Sanjeev, Singh V and Aggarwal S, Bimodal Co,Zn-Ferrite /PANI Nanocomposite: Synthesis, Formation Mechanism and Magnetic Properties, *Composites Science and Technology*, 249-254, 70(2010), Elsevier Sci. Ltd., UK.
- Mandal U.K., Sujata, Singh V and Aggarwal S, Synthesis of brushite nanoparticles at different temperatures, *Chemical Papers* 64 (4) 491–498 (2010), Springer, Netherland.
- Mandal U.K., Kumar Sanjeev, Singh V and Aggarwal S, Synthesis and Magnetic Properties of Bimodal Co-Zn Ferrite @ PANI Nanocomposites, *Soft Materials*,7, 150-163(2009), Taylor &Francis, UK.
- Mandal U.K., Bharadwaj P and Aggarwal S, Polyacrylamide /SiO₂ nanocomposites via In-situ Microemulsion Polymerization, *Journal Macromolecular Science Part-A*, 46:11, 1083-1094(2009), Taylor &Francis, UK.
- Mandal U.K., Kumar Sanjeev, Singh V and Aggarwal S, Synthesis of 1-dimensional polyaniline nanofibers by reverse microemulsion, *Colloid and Polymer Science*, 287, 1107-1110(2009), Springer, Netherland.

- Mandal U. K., Khatiwala V. K., Shekhar N and Aggarwal S., Biodegradation of Poly (ϵ -caprolactone)(PCL) Film by *Alcaligenes faecalis*, *J. Polymers and The Environment*, 16, 61(2008), Springer, Netherland.
- Mandal U.K., Sujata, Singh V and Aggarwal S, Synthesis of Nanocrystalline Hydroxyapatite in Microemulsion – Effect of nature of Surfactants, *J. Colloid and Interface Science*, 319, 322(2007), Elsevier Sci. Ltd., UK.
- Mandal U. K, Effect of Phthalic Anhydride on Thermo-mechanical Properties of Ionic elastomer based on carboxylated nitrile rubber, *International Journal of polymeric Materials*, 56, 1005(2007), Taylor & Francies, UK.
- Mandal U.K., Bharadwaj P and Aggarwal S, Polyacrylamide /SiO₂ nanocomposites via In-situ Microemulsion Polymerization, *International Journal of Polymeric Materials*, 57, 406(2007), Taylor & Francies, UK.
- Mandal U. K., Aggarwal S. Studies on rubber-filler interaction in carboxylated nitrile rubber through microhardness measurement, *Polymer Testing*, 20, 305(2001), Elsevier Sci. Ltd., UK.
- Mandal U. K, Ionic elastomer based on carboxylated nitrile rubber: Infrared spectral analysis, *Polymer International*, 49, 1-5(2000), Wiley Science, UK.
- Mandal U.K, Misra B. N.,, John V., Gupta A. & Kaur I. Graft copolymerization of methyl acrylate and methyl methacrylate onto polyamide film by the mutual method, *Material Science and Engg.*, A267, 36 (1999), Elsevier Sci. Ltd., UK.
- Mandal U. K. & Tripathy D. K Dynamic mechanical properties of an ionic elastomer based on carboxylated nitrile rubber - effect of calcium carbonate and clay, *Kautsch. Gummi Kunstst.* 9, 630(1997), Huthig, Germany.
- Mandal U. K., Tripathy D. K. & De S. K Effect of silica filler on dynamic mechanical properties of ionic elastomer based on carboxylated nitrile rubber , *J. Appl. Poly. Sci.* , 55, 1185(1996), John Wiley & sons, Inc., USA.
- Mandal U. K., Tripathy D. K. & De S. K Effect of zinc stearate on the rheology of an ionic elastomer based on carboxylated nitrile rubber , *Polym. Eng . Sci.*, 36, 283(1996), Society of Plastics Engineers, USA.
- Mandal U. K., Tripathy D. K. & De S. K Dynamic mechanical spectroscopic studies on plasticization of an ionic elastomer based on carboxylated nitrile rubber, *Polymer Communication*, 37, 3437(1996), Elsevier Sci. Ltd., UK.

- Mandal U. K., Tripathy D. K. & De S. K Dynamic mechanical spectroscopic studies on plasticization of an ionic elastomer based on carboxylated nitrile rubber by ammonia, *Polymer Communication*, 37, 5739(1996), Elsevier Sci. Ltd., UK.
- Mandal U. K., Tripathy D. K. & De S. K Effect of reinforcing carbon black fillers on dynamic mechanical properties of ionic elastomer based on carboxylated nitrile rubber , *Plast .Rubber Comp . Appl.*, 24 ,19 (1995), Elsevier Sci. Ltd., UK.
- Mandal U. K., Tripathy D. K & De S. K. Moving die rheometry and dynamic mechanical studies on the effect of reinforcing carbon black filler on ionomer formation during crosslinking of carboxylated nitrile rubber by zinc oxide , *Polymer* , 34, 3832 (1993), Butterworth-Heinemann Ltd., UK.

Other Conferences/Symposia

- Mandal U K, Polymeric Nanocomposites : Synthesis to Advanced Applications, Invited speaker in the 2nd Conference on Advancement in Chemical Engineering, Department of Chemical Engineering, Thapar University, Patiala, Punjab, 27-28th February 2011).
- Mandal U K, A K Saikia, Pallavi Bhardwal, Saroj Aggarwal, Synthesis and Solution Properties of a Thermosensitive Copolymer based on PEG/Poly (NIPAM-co-AMPS), presented in the 2nd Conference on Advancement in Chemical Engineering, Department of Chemical Engineering, Thapar University, Patiala, Punjab, 27-28th February, 2011.
- Mandal U K, Biswajit Sarkar, Prediction of permeates flux for gel-layer controlled laminar cross flow ultrafiltration, presented in international conference on recent advances in chemical engineering and technology, 10-12 March 2011, Cochin.
- Mandal U K, A K Saikia, Saroj Aggarwal, Preparation and controlled drug release characteristics of thermoresponsive PEG/poly (NIPAM-co-AMPS) hydrogels, presented in international conference on recent advances in chemical engineering and technology, 10-12 March 2011, Cochin.
- Mandal U K, Sanigdha Mahant, Harpreet Kaur, Development of PVA membrane for Pervaporation Separation Process, presented in the Conference on Advancement in Chemical Engineering, Department of Chemical Engineering, Thapar University, Patiala, Punjab, 27-28th February, 2009.
- Mandal U K, Munish Kumar Sharma and Sanigdha Mahant, Modeling and Simulation of PVA based Pervaporation Membrane Separation Process, presented in the National

Conference on Chemical Engineering and Environment - Current Trends and Issues, IPS and IES, Department of Chemical Engineering, Indore, 3-4th November, 2006.

- Mandal U K, Sanigdha Mahant, Aggarwal S, PVA membrane based Pervaporation Separation Process - A Review, presented in the National Conference on Chemical Engineering and Environment - Current Trends and Issues, IPS and IES, Department of Chemical Engineering, Indore, 3-4th November, 2006.
- Mandal U.K., Sujata, Singh V and Aggarwal S, Synthesis of Nanosize Polyacrylamide Hydrogels- Effect of Surfactants, Published in the proceedings of International Conference on Bio-Technology: Future Prospects at The Emirates, Al Ain, United Arab Emirates, 18-21 November, 2006.
- Mandal U. K., Khatiwala V. K., Shekhar N and Aggarwal S., A Novel Bacterium for Degradation of Poly(ϵ -caprolactone), presented a poster at IUPAC Sponsored Second International Symposium on Green/Sustainable Chemistry, Organized by University of Delhi, Delhi, India, on 10-13th January, 2006.
- Mandal U. K., Khatiwala V. K., and Aggarwal S., Biodegradation of Poly(ϵ -caprolactone) and its blends with Polyhydroxybutyrate, a poster presented in the National Symposium on Future Challenges in Chemical Sciences, H P University, Shimla, India, 9-10th March 2005.
- Mandal U K, Bhardwaj P, Aggarwal S, Microemulsion- a Novel Method for Nanopolymer Synthesis, presented in the National Conference on Recent Trends in Polymer Science and Technology, Thapar Institute of Engineering and Technology, Department of Chemical Engineering, Patiala, India, 6-7th May, 2005.
- Mandal U. K. and S. Aggarwal Biodegradable polymers – Degradation and Environmental Interaction, presented in an International Conference on Plastics and Environment-Opportunities and Challenges, 24-25 February 2003, Delhi.
- Mandal U. K., Kumar S., and Kaur Jagneet, Development of Natural Polymer Based Adsorbent for Removal of Reactive Dyes, presented in International Seminar on Polymeric Materials, 21st February 2000, Delhi.
- Mandal U. K. and S. Aggarwal Biodegradable and superabsorbent polymers Challenges and Opportunities in New Millennium- Presented in an Annual Convention of Chemists, 15-18 November 2000, held at Gurukul Kangri University, Haridwar.

- Mandal U. K. & Misra B. N. Modification of Paper Pulp by Graft Copolymerisation, Published in national Polymer Seminar and Technical Exhibition, 21st & 22nd February 1998, Government Eng. College, Raipur, MP.
- Mandal U. K. Khanna K. & Khullar G.. Development of Starch Reinforced Polyolefinic Blends as Bio-Degradable Polymer (published in the National Seminar on Polymer Research in Academy, Industry and R&D organization, Tezpur University and IIT, Kharagpur, 26-27th June 1998).

Manuscripts Reviewed

Applied Catalysis (Elsevier), Langmuir (ACS), JAPS (Wiley), Annals of Microbiology (Willy Verstraete), Macromolecules (ACS), J. Poly and The Envir.(Springer), Adv. in Poly. Tech.(Wiley).Applied Polymer Science(Wiley), Industrial Eng Chem Research(ACS), Journal of Interface Materials & Eng(ACS), Materials Letters (Elsevier), Journal of Phy Chemistry(ACS), JOURNAL OF PHOTOCHEMISTRY & PHOTOBIOLOGY, A: CHEMISTRY(Elsevier) etc.

TEACHING EXPERIENCE

Organization	Duration	Designation	Responsibilities	Achievements
GGS Indraprastha University, Delhi	04/01/2012	Professor	Teaching, Research and Research Lab Development	Ongoing research: hydrogels designing and their applications in drug delivery and membrane separation technology.
GGS Indraprastha University, Delhi	04/10/2007 - 03/01/2012	Associate Professor	Teaching, Research and Research Lab Development	M. Tech Project Supervision, Three research scholars have submitted their Ph.D thesis. Research is going on nanopolymer and nanoparticles synthesis by microemulsion process.
GGS Indraprastha University, Delhi	05/10/2004 - 04/10/2007	Reader	Teaching, Research and Research Lab Development	M. Tech Project Supervision, Submission of Project Proposals. Supervisor/Co-supervisor for three research scholars. Research started on nanopolymer and nanoparticles synthesis by microemulsion process and membrane separation technology.
GGS Indraprastha University, Delhi	04/10/200 - 04/10/2004	Sr. Lecturer	Teaching, Course Curriculum Development, Lab development and Research	Developed Postgraduate Chemical Engineering course Curriculum, labs like, Process Control, CAD and Simulation. M. Tech Project Supervision etc.
GGS Indraprastha University, Delhi	05/10/1999 - 03/10/2000	Lecturer	Teaching, Course Curriculum Development, Lab development and Research	Developed undergraduate Chemical Engineering course Curriculum, labs like Unit Operations, Mass Transfer, Heat Transfer,
SLIET, Longowal, Punjab	04/10/1996 - 04/10/1999	Lecturer	Teaching, Lab development and Research	Developed under graduate labs like Polymer synthesis and Characterization, Unit Operation and Mass Transfer. Received a MHRD sponsored Project of Rs.10 lacs (No. F.27-1/98 TS 1, Dated 04.01.1999) under scheme of Thrust Areas of Technical Education.
Dr. Babasaheb Ambedkar Technological University, Lonere, Maharashtra	26/09/1994 - 24/08/1995	Lecturer	Teaching and Lab Development	Developed under graduate labs like Polymer synthesis and Characterization, Polymer Testing, Polymer Processing and Polymer Product Design

ADMINISTRATIVE EXPERIENCES

Responsibility	Period
Dean	2012- 2015, 2018-
Proctor	2015
BOM Member (GGSIPU)	2014-2015
BOS member(GGSIPU)	2010-
BOS member(MSU, Baroda)	2013-15
SRC member	2005-
Centre Superintendent (Evaluation)	2009-2015