

Curriculum Vitae of Dr. Ajoy Kanti Mondal

Contact Address:

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Background:

Dr. Ajoy Kanti Mondal obtained his PhD degree in Forestry Engineering (basically material science) from the College of Material Engineering, Fujian Agriculture and Forestry University, Fuzhou, Fujian, China. He completed a master's degree in physical chemistry (holding first class, first position) from the University of Dhaka, Bangladesh, and a B.Sc. degree in Chemistry from the same university. Dr. Mondal brings over 15 years of academic and industrial research experience in material synthesis, characterization, and applications. He did some excellent research in the fields of biomass or waste valorization, especially lignin/lignocellulosic materials and leather waste for the preparation of advanced functional composite materials for energy and environmental applications. These works have led to 77 peer-reviewed publications in respected journals (Elsevier, Wiley, ACS, Springer). During his PhD research, he focused on the extraction, modification, and valorization of lignin and lignocellulosic biomass into high-value materials. His research has particularly focused on the development of sustainable hydrogel-based systems derived from renewable biomass resources. In addition, Dr. Mondal is responsible for planning, undertaking, supervising, and executing the R&D program of a research section and for undertaking other investigative works & experimental studies assigned by the authority, especially the industrial problems.

Research ID Links:

Google Scholar ID : <https://scholar.google.com/citations?user=ChISMesAAAAJ&hl=en>

Research Gate ID : <https://www.researchgate.net/profile/Ajoy-Mondal>
ORCID : <https://orcid.org/0000-0002-0982-0457>
Web of Science ID : https://www.webofscience.com/wos/author/record/AGZ-7591-2022?msg_guid=bt4fe62MwgKt4V1xMN679Cyha8E
Scopus ID : <https://www.scopus.com/authid/detail.uri?authorId=57215547122>
Official Website : <https://research.most.gov.bd/research/profile/ede301fc12>

Academic Qualifications:

Doctor of Philosophy (Ph. D):

Institution : Fujian Agriculture and Forestry University
College : College of Material Engineering
Major : Forestry Engineering
Session : September 2018 to July 2022

Master of Science (M.S.):

Institution : University of Dhaka, Dhaka, Bangladesh
Department : Physical Chemistry
Session : 2008-2009
Exam year : 2009 (Exam held in 2011)
Result : First Class (**First Position**)

Bachelor of Science (B.Sc., Honors, Four Year):

Institution : University of Dhaka, Dhaka, Bangladesh
Department : Chemistry
Exam year : 2008 (Exam held in 2010)
Result : First Class

Research Background

Dr. Mondal developed multifunctional hydrogel from lignin for the applications of supercapacitor, sensor, energy storage devices, dye adsorbent, etc. His research included to pyrolysis of lignin to produce bio-oil and upgraded the bio-oil as well. He has good expertise in material science, adsorption, adsorption kinetics, biomass, lignocellulosic materials, etc. His research topic in different degrees is listed below:

PhD Thesis Title: Preparation of lignin containing functional hydrogels and their sensing, dye adsorption and supercapacitance applications

MS Thesis Title: Kinetics and adsorption equilibrium of aqueous reactive black 5 on chitin prepared from shrimp shells

4th year Project Title: Removal of methylene blue from aqueous solution using ferric oxide as an adsorbent

Previous Job Background

- Senior Scientific Officer, Institute of National Analytical Research and Service, **Bangladesh Council of Scientific and Industrial Research**, January 2020 to present.
- Scientific Officer, Institute of Fuel Research and Development, **Bangladesh Council of Scientific and Industrial Research**, February 2013 to December 2019.
- Lecturer in Chemistry, Department of Textile Engineering, **Bangladesh University of Business and Technology**, July 2012 to January 2013.

Published Paper

Dr. Mondal published many articles in different high ranking journals. His publications are listed below:

Corresponding & First Author Publications:

1. Zuwu Tang, Hongying Wanyan, Zhenzeng Wu, Xiaodong (Alice) Wang, **Ajoy Kanti Mondal***, Hai Huang, and Hui Wu. “MXene reinforced CMC-P(AA-co-AM)/PANI hydrogel for high-performance all-in-one supercapacitors and flexible sensors” *Composites Science and Technology* 284 (2026): 111757.
2. Ilnaz Fargul Chowdhury, Akash Debnath, Shyama Prosad Moulick, Md Ashraful Alam, SM Asaduzzaman Sujon, Md Tushar Uddin, Md Salim Khan, and **Ajoy Kanti Mondal***. “Efficient Recovery of Collagen from Tannery Waste Materials and Its Integration into Functional Hydrogel Systems.” *Gels* 12, no. 4 (2026): 301.
3. Md Tanzil Ahamed Shawon, Ilnaz Fargul Chowdhury, Partha Paul, Md Salim Khan, Md Anamul Haque, Zuwu Tang, and **Ajoy Kanti Mondal***. “Lignin reinforced conductive hydrogels with antibacterial properties for flexible supercapacitor applications.” *International Journal of Biological Macromolecules* (2025): 148722.
4. Ilnaz Fargul Chowdhury, Shyama Prosad Moulick, Md Al-Amin, Md Tanzil Ahamed Shawon, Sarker Kamruzzaman, Zuwu Tang, and **Ajoy Kanti Mondal***. “A sustainable approach for harnessing the synergy between lignosulfonate and hemicellulose: Towards next-generation bio-derived flexible electronics.” *International Journal of Biological Macromolecules* (2025): 147985.

5. Zuwu Tang, Akash Debnath, Shiqian Li, and **Ajoy Kanti Mondal***. “Polysaccharide-based beads and water purification: A review.” *International Journal of Biological Macromolecules* (2025): 145382.
6. Xu Dong, Changwei Shi, Yaning Wang, Fang Hu, **Ajoy Kanti Mondal***, and Zuwu Tang. “Customized Hemp Pulp Extraction via Laccase–Pectinase Pretreatment for Improved Waste Pulp Papermaking.” *ACS Omega* (2026).
7. Akash Debnath, Md Tushar Uddin, Md Khabir Hossain, **Ajoy Kanti Mondal***, and SM Asaduzzaman Sujan. “Composite Polymer From Power Plant PVC Waste and Chrome-Tanned Leather Waste: An Approach of Waste Minimization.” *International Journal of Polymer Science* 2025, no. 1 (2025): 5595141.
8. Zuwu Tang, Ilnaz Fargul Chowdhury, Jinbei Yang, Shi Li, **Ajoy Kanti Mondal***, and Hui Wu. “Recent advances in tannic acid-based gels: Design, properties, and applications.” *Advances in Colloid and Interface Science* (2025): 103425.
9. Ilnaz Fargul Chowdhury, Md Tanzil Ahamed Shawon, Md Ashraful Alam, Sabiha Fatima, Azmat Ali Khan, Jinbei Yang, Zuwu Tang, and **Ajoy Kanti Mondal***. “Ni²⁺-Rich Collagen/Lignin Composite Hydrogel: Transforming Industrial Waste Materials into Flexible Electronics.” *ACS Applied Polymer Materials* 6 (2024): 15094-15104.
10. Md Ashraful Alam, Akash Debnath, Md Tushar Uddin, Al Tamanna, Sarker Kamruzzaman, Hosne Ara Begum, Swapan Kumer Ray, Sabiha Fatima, Azmat Ali Khan, Zuwu Tang, **Ajoy Kanti Mondal***. “Flexible high electrochemical collagen/lignin composite hydrogel for sensing and supercapacitor applications.” *International Journal of Biological Macromolecules* 281 (2024): 136240.
11. Md Ashraful Alam, Akash Debnath, Khandoker Tahmina Tasnim, Shashanka Shekhar Sarker, Md Tushar Uddin, Sarker Kamruzzaman, Ilnaz Fargul Chowdhury, Md Tanzil Ahamed Shawon, Zuwu Tang, and **Ajoy Kanti Mondal***. “Facile strategy of Fe³⁺ rich collagen-based composite hydrogel for antibacterial, electricity harvesting and sensing applications.” *Materials Today Communications* 41 (2024): 110391.
12. Md. Ashraful Alam, Md. Tushar Uddin, Md. Abul Kashem Azad, Shashanka Shekhar Sarker, Md. Abdur Razzaq, Md. Sefiatulla Ridoy, Md. Aftab Ali Shaikh, **Ajoy Kanti Mondal***, “Fatliquor from rubber seed oil: Synthesis and application in leather processing.” *Industrial Crops and Products*, 219 (2024): 119099.

13. Anqi Cai, Yalan Chen, Xinxin Zhang, Jinli Zou, Jinbei Yang, **Ajoy Kanti Mondal***, Yang Wu, and Zuwu Tang. “Facile strategy of supramolecular adhesives based on water-soluble polymers and tannic acid.” *Polymer* (2024): 127343.
14. Yalan Chen, Jinli Zou, Meiqiong Yu, **Ajoy Kanti Mondal***, Shi Li, and Zuwu Tang. “Physically crosslinked tannic acid-based adhesive for bonding wood.” *Cellulose* (2024): 1-10.
15. Zuwu Tang, Jinbei Yang, Shi Li, Zhenzeng Wu and **Ajoy Kanti Mondal***. “Anti-swellable, stretchable, self-healable, shape-memory and supramolecular conductive TA-based hydrogels for amphibious motion sensors.” *European Polymer Journal* 211 (2024): 113034.
16. Zuwu Tang, Xinxing Lin, Meiqiong Yu, Jinbei Yang, Shiqian Li, **Ajoy Kanti Mondal*** and Hui Wu. “A review of cellulose-based catechol-containing functional materials for advanced applications.” *International Journal of Biological Macromolecules* (2024): 131243.
17. Anqi Cai, Xinxin Zhang, Peirong Cai, Zhenzeng Wu, **Ajoy Kanti Mondal*** and Zuwu Tang. “Preparation of tannic acid-reinforced cellulose nanofiber composites for all-water-based high-performance wood adhesives.” *International Journal of Biological Macromolecules* (2024): 130770.
18. Zuwu Tang, Xinxing Lin, Meiqiong Yu, **Ajoy Kanti Mondal*** and Hui Wu. “Recent advances in TEMPO-oxidized cellulose nanofibers: Oxidation mechanism, characterization, properties and applications.” *International Journal of Biological Macromolecules* (2023): 129081.
19. Khandoker Tahmina Tasnim, Akash Debnath, Md Tushar Uddin, Md Ashraful Alam, Md Abdur Razzaq, Sk Zubaer Zaman, Md Aftab Ali Shaikh, and **Ajoy Kanti Mondal***. “Comparative Evaluation of Tannin from Banana Bunch and Stem Syrup for Leather Processing.” *Heliyon* 10(11), (2024): e31787.
20. Md Ashraful Alam, Md Tushar Uddin, Khandokar Tahmina Tasnim, Shashanka Shekhar Sarker, Md Abdur Razzaq, Md Alamgir Kabir, SM Asaduzzaman Sujon and **Ajoy Kanti Mondal***. “Comparative evaluation of physicochemical and antimicrobial properties of rubber seed oil from different regions of Bangladesh.” *Heliyon* 10(4), (2024): e25544.
21. Zuwu Tang, Xinxing Lin, Meiqiong Yu, **Ajoy Kanti Mondal***, Liulian Huang, Lihui Chen and Hui Wu. “Antiswellable, Conductive, and Recyclable Coacervate Polyacrylamide/Tannic

- Acid Composite Hydrogel for Underwater Wearable Sensors.” *ACS Applied Polymer Materials* 6(1) (2023): 806-816.
22. Zuwu Tang, Xinxing Lin, Yalan Chen, Yuwei Pan, Yuqing Yang, **Ajoy Kanti Mondal***, Meiqiong Yu and Hui Wu. “Preparation of mussel-inspired polydopamine-functionalized TEMPO-oxidized cellulose nanofiber-based composite aerogel as reusable adsorbent for water treatment.” *Industrial Crops and Products* 206 (2023): 117735.
 23. Zuwu Tang , Meiqiong Yu, Yuqing Yang, Yuwei Pan, **Ajoy Kanti Mondal*** and Xinxing Lin. “Development of an Antioxidant and UV-Shielding Composite Hydrogel Using Mussel-Inspired Cellulose Nanocrystals, Polydopamine, and Poly (vinyl alcohol) for Application in Sunscreens.” *ACS Applied Polymer Materials* (2023).
 24. **Ajoy Kanti Mondal***, Md Tushar Uddin, S. M. A. Sujana, Zuwu Tang, Digafe Alemu, Hosne Ara Begum, Jianguo Li, Fang Huang and Yonghao Ni. “Preparation of lignin-based hydrogels, their properties and applications.” *International Journal of Biological Macromolecules* (2023): 125580.
 25. Zuwu Tang, Xinxing Lin, Meiqiong Yu, **Ajoy Kanti Mondal*** and Hui Wu. “Development of Biocompatible Mussel-Inspired Cellulose-Based Underwater Adhesives.” *ACS omega* 9(3) (2024): 3877-3884.
 26. Zuwu Tang, Yuqing Yang, Yuwei Pan, Meiqiong Yu, Xinxing Lin and **Ajoy Kanti Mondal***. “Biocompatible, Injectable, and Self-Healing Poly (N-vinylpyrrolidone)/Carboxymethyl Cellulose Hydrogel for Drug Release.” *ACS omega* (2024).
 27. Digafe Alemu, Belete Ketema, and **Ajoy Kanti Mondal***. “Recent Advances of Phytochemicals and Their Applications for Antiviral Therapy.” *Journal of Biochemistry and Biophysics* 6(1) (2024): 1-15.
 28. **Ajoy Kanti Mondal**, Dezhong Xu, Shuai Wu, Qiuxia Zou, Fang Huang and Yonghao Ni. “Design of Fe³⁺-rich, high-conductivity lignin hydrogels for supercapacitor and sensor applications.” *Biomacromolecules* 23(3) (2022): 766-778.
 29. Digafe Alemu, Efrata Getachew and **Ajoy Kanti Mondal***. “Study on the Physicochemical Properties of Chitosan and their Applications in the Biomedical Sector.” *International Journal of Polymer Science* 2023 (2023).
 30. **Ajoy Kanti Mondal**, Dezhong Xu, Shuai Wu, Qiuxia Zou, Weijie Lin, Fang Huang and Yonghao Ni. “Lignin-containing hydrogels with anti-freezing, excellent water retention and

- super-flexibility for sensor and supercapacitor applications.” *International Journal of Biological Macromolecules* 214 (2022): 77-90.
31. **Ajoy Kanti Mondal**, Dezhong Xu, Shuai Wu, Qiuxia Zou, Weijie Lin, Fang Huang and Yonghao Ni. “High lignin containing hydrogels with excellent conducting, self-healing, antibacterial, dye adsorbing, sensing, moist-induced power generating and supercapacitance properties.” *International Journal of Biological Macromolecules* 207 (2022): 48-61.
 32. **Ajoy Kanti Mondal**, Shuai Wu, Dezhong Xu, Qiuxia Zou, Lihui Chen, Liulian Huang, Fang Huang and Yonghao Ni. “Preparation of lignosulfonate ionic hydrogels for supercapacitors, sensors and dye adsorbent applications.” *International Journal of Biological Macromolecules* 187 (2021): 189-199.
 33. **Ajoy Kanti Mondal**, Chengrong Qin, Arthur J. Ragauskas, Yonghao Ni and Fang Huang. “Conversion of Loblolly pine biomass residues to bio-oil in a two-step process: Fast pyrolysis in the presence of zeolite and catalytic hydrogenation.” *Industrial crops and products* 148 (2020): 112318.
 34. **Ajoy Kanti Mondal**, Chengrong Qin, Arthur J. Ragauskas, Yonghao Ni and Fang Huang. “Preparation and characterization of various kraft lignins and impact on their pyrolysis behaviors.” *Industrial & Engineering Chemistry Research* 59(8) (2020): 3310-3320.
 35. **Ajoy Kanti Mondal**, Chengrong Qin, Arthur J. Ragauskas, Yonghao Ni and Fang Huang. “Effect of using regenerated combined FAU and MOR zeolites as catalysts during the pyrolysis of kraft lignin.” *Bioresources* 16(1) (2020).
 36. Digafe Alemu, Mesfin Tafesse and **Ajoy Kanti Mondal***. “Mycelium-based composite: The future sustainable biomaterial.” *International journal of biomaterials* 2022 (2022).
 37. **Ajoy Kanti Mondal**, Chengrong Qin, Arthur J. Ragauskas, Yonghao Ni and Fang Huang. “Hydrogenation of pyrolysis oil from Loblolly pine residue.” *Paper and Biomaterials* 5(1) (2020): 1-13.
 38. **Ajoy Kanti Mondal***, Taposhi Rabeya and Md. Asadullah Asad. “Removal of methylene blue from wastewater using Fe₂O₃ as an adsorbent.” *Indian Journal of Advances in Chemical Science* 6(4) (2018): 200-204.

Co-Author Publications

1. Xilai Yan, Yuqing Tang, Guangying Huang, Han Han, **Ajoy Kanti Mondal**, Weijie Lin, and Fang Huang. “Fabrication and properties of bio-based flexible polyurethane foams by substituting Kraft lignin polyol.” *Journal of Polymer Research* 33, no. 7 (2026): 273.
2. Han Han, Yuqing Tang, Guangying Huang, Xilai Yan, Jie Xie, Hongshen He, Weijie Lin, **Ajoy Kanti Mondal**, Shibo Han, and Fang Huang. “Preparation of Cu-loaded porous metal oxide catalysts for the catalytic upgrading of wood tar in supercritical methanol.” *Fuel* 415 (2026): 138499.
3. Md Riad Hossain Sabuj, M. M. Hossain, M. A. Toma, M. M. Khan, **Ajoy Kanti Mondal**, and M. I. S. Hossain. “Color enhancement of chrome tanned goat leathers using aqueous tea extracts as dyeing agent.” *Bangladesh Journal of Scientific and Industrial Research* 60, no. 4 (2025): 251-262.
4. Sarna Khanam, Farzana Yeasmin, **Ajoy Kanti Mondal**, Mustafizur Rahman Naim, Abhijit Chowdhury, and Swapan Kumer Ray. “Redox-driven ultrafast synthesis of lignin-based hydrogel: Optimization, characterization and prospects for slow NPK-fertilizer release under varied environmental conditions.” *Industrial Crops and Products* 237 (2025): 122199.
5. Hui Zhao, Weiguang Zhao, Heyue Zhu, Meizhen Jiao, Yehan Tao, Yanna Lv, Jinwen Hu, Jian Du, Haisong Wang, **Ajoy Kanti Mondal**, Chenglong Fu, Liangliang Bai, Jie Lu. “High-efficiency fractionation and enzymatic saccharification of poplar wood through biphasic pretreatment with tartaric acid and benzyl alcohol.” *Renewable Energy* (2025): 124628.
6. Md Ashraful Alam, Md Mokarom Hossain, **Ajoy Kanti Mondal**, Shashanka Shekhar Sarker, Khandoker Tahmina Tasnim, Md Sefiatulla Ridoy, Shahin Aziz, and Md Tushar Uddin. “Epoxidized rubber seed oil: A modified tanning material for chamois leather.” *Industrial Crops and Products* 234 (2025): 121564.
7. Han Han, Guangying Huang, Xilai Yan, Shibo Han, Jie Xie, Hongshen He, **Ajoy Kanti Mondal**, Weijie Lin, and Fang Huang. “Preparation and properties of sulfomethylated lignin-based highly flexible polyurethane foam.” *International Journal of Biological Macromolecules* (2025): 146333.
8. Xianxin Han, Yu Zhang, Binghao Zou, Hao Tong, **Ajoy Kanti Mondal**, Yehan Tao, Jinwen Hu, Jian Du, Chenglong Fu, and Haisong Wang. “Hydrophilic bamboo powder-reinforced

- cellulose composite foams with tailored hydrogen bonding network for structural cushioning applications.” *Sustainable Materials and Technologies* (2025): e01690.
9. Hongshen He, Guangying Huang, Xilai Yan, Han Han, Jie Xie, Shibo Han, **Ajoy Kanti Mondal**, Qingxian Miao, and Fang Huang. “Synergistic optimization of polypyrrole/mulberry paper-based composite electrode by carbon black and multi-walled carbon nanotubes for high-performance flexible all-solid-state supercapacitors.” *Journal of Energy Storage* 120 (2025): 116475.
 10. Md Rabiul Islam, Sapan Kumar Sen, M. S. Manir, Arup Kumar, Zannath Ara, Pronabananda Das, **Ajoy Kanti Mondal**, Arifatun Nahar, AKM Moshiul Alam, and Md Abdun Nur. “Effects of gamma irradiation on phytochemically synthesized CuO nanoparticles using Mussaenda frondosa leaves and their X-ray crystallographic analysis.” *Journal of Radiation Research and Applied Sciences* 18(2) (2025): 101458.
 11. Jianping Shi, Xinyuan Zhang, Yingchao Wang, Yiku Liu, Shengyue Niu, **Ajoy Kanti Mondal**, Hui Zhang, Jianguo Li, and Lihui Chen. “Robust nanofluidic membrane: Charged cellulose tandem angstrom/nanochanneled ZIF-8.” *Chemical Engineering Journal* (2025): 160447.
 12. Shibo Han, Guangying Huang, Han Han, Xilai Yan, Jie Xie, Hongshen He, **Ajoy Kanti Mondal**, Weijie Lin, and Fang Huang. “Study on the preparation and properties of lignin-based flexible polyurethane foams with NaCl as a medium.” *International Journal of Biological Macromolecules* (2025): 140370.
 13. Shibo Han, Guangying Huang, Han Han, Xilai Yan, Jie Xie, Hongshen He, **Ajoy Kanti Mondal**, Weijie Lin, and Fang Huang. “Study on the preparation and properties of lignin-based flexible polyurethane foams with NaCl as a medium.” *International Journal of Biological Macromolecules* (2025): 140370.
 14. Shibo Han, Xilai Yan, Han Han, Weijie Lin, Hongshen He, Jie Xie, **Ajoy Kanti Mondal**, Qiuxia Zou, and Fang Huang. “Study the implication of different SiO₂/Al₂O₃ ratios on the pore size and acidity of Beta zeolite and its catalytic pyrolysis mechanism of Kraft lignin.” *Journal of Analytical and Applied Pyrolysis* 183 (2024): 106730.
 15. Weijie Lin, Dengwen Ning, Dezhong Xu, Shuai Wu, Qiuxia Zou, **Ajoy Kanti Mondal**, and Fang Huang. “Study on the effect of combined and free lignin to the cellulose enzymatic hydrolysis.” *Industrial Crops and Products* 222 (2024): 119516.

16. Jiajun Jiang, Qianhong Zhang, Xiyao Luo, Binbin Cheng, Qunfeng Chen, Jiawei Yang, Liulian Huang, **Ajoy Kanti Mondal**, Zhanhui Yuan, Lihui Chen, and Jianguo Li. “Superfast, large-scale harvesting of cellulose molecules via ethanol pre-swelling engineering of natural fibers.” *Carbohydrate Polymers* 343 (2024): 122484.
17. Qiuxia Zou, Hongshen He, Jie Xie, Shibo Han, Weijie Lin, **Ajoy Kanti Mondal** and Fang Huang. “Study on the mechanism of acid modified H-Beta zeolite acidic sites on the catalytic pyrolysis of Kraft lignin.” *Chemical Engineering Journal* 462 (2023): 142029.
18. Haodong Sun, Yang Liu, Xuefang Guo, Kaizhu Zeng, **Ajoy Kanti Mondal**, Jianguo Li, Yonggang Yao and Lihui Chen. “Strong, robust cellulose composite film for efficient light management in energy efficient building.” *Chemical Engineering Journal* 425 (2021): 131469.
19. Qunfeng Chen, Yang Liu, Tao Tao, Haodong Sun, Kaizhu Zeng, **Ajoy Kanti Mondal**, Shuai Bi et al. “Sustainable, superfast deconstruction of natural cellulosic aggregates toward intrinsically green, multifunctional gel.” *Chemical Engineering Journal* 435 (2022): 134856.
20. Haodong Sun, Yuwen Chen, Wenchao Zeng, Fengjie Tang, Yinghao Bi, Qingxin Lu, **Ajoy Kanti Mondal**, Liulian Huang, Lihui Chen and Jianguo Li. “Solution-processable, robust and sustainable cooler via nano-structured engineering.” *Carbohydrate Polymers* 314 (2023): 120948.
21. Weijie Lin, Shuai Wu, Shibo Han, Jie Xie, Hongshen He, Qiuxia Zou, Dezhong Xu, Dengwen Ning, **Ajoy Kanti Mondal** and Fang Huang. “Preparation and characterization of highly conductive lignin aerogel based on tunicate nanocellulose framework.” *International Journal of Biological Macromolecules* 242 (2023): 125010.
22. Dezhong Xu, Yanan Cheng, Weijie Lin, Shibo Han, Shuai Wu, Ajoy Kanti Mondal, Ao Li and Fang Huang. “Di-aldehyde tunicate cellulose nanocrystal (D-tCNC) aerogels for drug delivery: Effect of D-tCNC composition on aerogel structure and release properties.” *International Journal of Biological Macromolecules* 256 (2024): 128345.
23. Weijie Lin, Han Han, Xilai Yan, Jie Xie, Hongshen He, Shibo Han, Dengwen Ning, **Ajoy Kanti Mondal**, Shuai Wu, and Fang Huang. “Development of lignin hydrogel reinforced polypyrrole rich electrode material for supercapacitor and sensing applications.” *International Journal of Biological Macromolecules* (2024): 132962.

24. Shashanka Shekhar Sarker, Taslima Akter, Sahana Parveen, Md Tushar Uddin, **Ajoy Kanti Mondal** and SM Asaduzzaman Sujon. "Microalgae-based green approach for effective chromium removal from tannery effluent: A review." *Arabian Journal of Chemistry* (2023): 105085.
25. Qiuxia Zou, Shibo Han, Jie Xie, Hongshen He, Weijie Lin, **Ajoy Kanti Mondal** and Fang Huang. "Study on the quality improvement of bio-oil prepared by catalytic pyrolysis of kraft lignin: the role of micropore/mesopore beta zeolites." *Biomass Conversion and Biorefinery* (2023): 1-14.
26. Akash Debnath, Md Ashraful Alam, **Ajoy Kanti Mondal**, Md Tushar Uddin, Md Aftab Ali Shaikh and S. M. Sujon. "Development of Flexible Composite Sheet with Chrome Shavings Using Polyvinyl Alcohol as a Cross-Linker." *International Journal of Polymer Science* 2023 (2023).
27. Md Ashraful Alam, **Ajoy Kanti Mondal**, Md Tushar Uddin, Md Abdur Razzaq, Murshid Jaman Chowdhury and Madhu Sudan Saha. "Chemical Investigation and Separation of Chromium from Chrome Cake of BSCIC Tannery Industrial Estate at Hemayetpur, Dhaka, Bangladesh." *Journal of Environmental and Public Health* 2023 (2023).
28. Dezhong Xu, Ao Li, Weijie Lin, Qiuxia Zou, Shuai Wu, **Ajoy Kanti Mondal**, Wangchuan Xiao and Fang Huang. "Preparation and characterization of pH and thermally responsive perfluoropolyether acrylate copolymer micelles and investigation its drug-loading properties." *Journal of Applied Polymer Science* 140(18) (2023): e53805.
29. Zuwu Tang, Meiqiong Yu, **Ajoy Kanti Mondal** and Xinxing Lin. "Porous Scaffolds Based on Polydopamine/Chondroitin Sulfate/Polyvinyl Alcohol Composite Hydrogels." *Polymers* 15(2) (2023): 271.
30. Qiuxia Zou, Weijie Lin, Dezhong Xu, Shuai Wu, **Ajoy Kanti Mondal** and Fang Huang. "Study the effect of zeolite pore size and acidity on the catalytic pyrolysis of Kraft lignin." *Fuel Processing Technology* 237 (2022): 107467.
31. Dezhong Xu, Yanan Cheng, Shuai Wu, Qiuxia Zou, **Ajoy Kanti Mondal**, Dengwen Ning and Fang Huang. "Study on the effect of tunicate cellulose nanocrystals in the preparation of sodium alginate-based enteric capsule." *Cellulose* 29(4) (2022): 2497-2511.
32. Dong Wang, Hongmei Yuan, Yutong Chen, Yonghao Ni, Liulian Huang, **Ajoy Kanti Mondal**, Shan Lin, Fang Huang and Hui Zhang. "A cellulose-based nanofiltration membrane

with a stable three-layer structure for the treatment of drinking water.” *Cellulose* 27 (2020): 8237-8253.

33. Yanan Cheng, **Ajoy Kanti Mondal**, Shuai Wu, Dezhong Xu, Dengwen Ning, Yonghao Ni and Fang Huang. “Study on the anti-biodegradation property of tunicate cellulose.” *Polymers* 12(12) (2020): 3071.
34. Shuai Wu, Dengwen Ning, Dezhong Xu, Yanan Cheng, **Ajoy Kanti Mondal**, Qiuxia Zou, Hongyi Zhu and Fang Huang. “Preparation and characterization of super hydrophobic aerogels derived from tunicate cellulose nanocrystals.” *Carbohydrate research* 511 (2022): 108488.
35. Mohammad Abdur Rouf, Md. Saiful Islam, Taposhi Rabeya, **Ajoy Kanti Mondal**, Mahafuza Khanam, P. R. Samadder and Y. Ara. “Biogas from slaughter house waste and optimization of the process.” *Bangladesh Journal of Scientific and Industrial Research* 51(3) (2016): 203-214.
36. Mohammad Abdur Rouf, Md. Saiful Islam, Taposhi Rabeya and **Ajoy Kanti Mondal**. “Anaerobic digestion of mixed dried fallen leaves by mixing with cow dung.” *Bangladesh Journal of Scientific and Industrial Research* 50(3) (2015): 163-168.
37. Hosne Ara Begum, **Ajoy Kanti Mondal** and Tanvir Muslim. “Adsorptive removal of reactive black 5 from aqueous solution using chitin prepared from shrimp shells.” *Bangladesh Pharmaceutical Journal* 15(2) (2012): 145-152.
38. Sadia Saberin , Rupack Ranjan Halder, Ijaz Hossain, Abdur Rouf, Taposhi Rabeya, **Ajoy Kanti Mondal** and Shahed Israil Khan. “Compressed biogas from maize waste.” *Journal of Nature Science & Sustainable Technology* 11(3) (2017).

Conducted Research Projects in the Role of Principal Investigator

1. Project Title: Preparation of lignocellulose-based conductive and tough hydrogel for the application in flexible electronics. Funded from Bangladesh Council of Scientific and Industrial Research, Ministry of Science and Technology, Peoples Republic of Bangladesh. Financial Year: 2025-2027.
2. Project Title: Conductive, self-healing, antibacterial, and mechanically robust collagen hydrogel for flexible electronics. Funded from Ministry of Science and Technology, Peoples Republic of Bangladesh. Financial Year: 2025-2026.

3. Project Title: Development of hydrogel-based strain sensor. Funded from Bangladesh Council of Scientific and Industrial Research, Ministry of Science and Technology, Peoples Republic of Bangladesh. Financial Year: 2024-2025.
4. Project Title: Extraction of collagen from raw trimming waste generated from tannery for the synthesis of functional material. Funded from Ministry of Science and Technology, Peoples Republic of Bangladesh. Financial Year: 2024-2025.
5. Project Title: Preparation of hide powder from raw trimmings for the formulation of functional material. Funded from Bangladesh Council of Scientific and Industrial Research, Ministry of Science and Technology, Peoples Republic of Bangladesh. Financial Year: 2023-2024.

Review Activities in the Peer Review Journals

Dr. Mondal reviewed more than 750 manuscripts in different high-ranking journals. Some of his review journals with the total number of reviewed manuscripts are listed below:

- Review activity for **ACS Applied Materials & Interfaces**. (3)
- Review activity for **ACS Applied Polymer Materials**. (3)
- Review activity for **ACS Omega**. (4)
- Review activity for **Applied Biochemistry and Biotechnology**. (1)
- Review activity for **Applied Materials Today**. (3)
- Review activity for **Biomass Conversion and Biorefinery**. (1)
- Review activity for **Biomimetics**. (2)
- Review activity for **Bioresource Technology Reports**. (8)
- Review activity for **Biosensors & Bioelectronics**. (6)
- Review activity for **Biotechnology and Bioengineering**. (1)
- Review activity for **Carbohydrate Polymer Technologies and Applications**. (125)
- Review activity for **Carbohydrate Polymers**. (1)
- Review activity for **Carbohydrate Research** (2)
- Review activity for **Case Studies in Construction Materials**. (17)
- Review activity for **Cellulose**. (2)
- Review activity for **Chemical Engineering Journal**. (37)
- Review activity for **ChemistrySelect** (2)
- Review activity for **Circular Economy and Sustainability**. (3)
- Review activity for **Colloids and surfaces. A, Physicochemical and Engineering Aspects**. (8)
- Review activity for **Construction & Building Materials**. (6)

Review activity for **Discover Materials**. (1)

Review activity for **European Journal of Agronomy**. (5)

Review activity for **European Polymer journal**. (41)

Review activity for **Fibers and Polymers**. (2)

Review activity for **Food Bioscience**. (4)

Review activity for **Food Chemistry**. (2)

Review activity for **Fuel Processing Technology**. (1)

Review activity for **Gels**. (21)

Review activity for **Global Challenges**. (2)

Review activity for **Heliyon**. (13)

Review activity for **Industrial Crops and Products**. (45)

Review activity for **International Journal of Biological Macromolecules**. (130)

Review activity for **International Journal of Polymer Science**. (1)

Review activity for **Ionics**. (4)

Review activity for **Journal of Analytical and Applied Pyrolysis**. (6)

Review activity for **Journal of Applied Polymer Science**. (6)

Review activity for **Journal of Cleaner Production**. (11)

Review activity for **Journal of Energy Storage**. (41)

Review activity for **Journal of Engineering Research and Reports**. (1)

Review activity for **Journal of Environmental Chemical Engineering**. (4)

Review activity for **Journal of Experimental Pharmacology** (1)

Review activity for **Journal of Functional Biomaterials**. (1)

Review activity for **Journal of Hazardous Materials**. (9)

Review activity for **Journal of Polymer Engineering**. (2)

Review activity for **Journal of Power Sources**. (2)

Review activity for **Materials Today Chemistry**. (4)

Review activity for **Materials Today Communications**. (65)

Review activity for **Molecular Biology International** (1)

Review activity for **MRS Advances**. (5)

Review activity for **Nanoscale**. (2)

Review activity for **Next Materials**. (1)

Review activity for **PeerJ Materials Science**. (1)

Review activity for **Pharmaceuticals**. (1)

Review activity for **Polymer Bulletin**. (1)

Review activity for **Polymer Testing** (3)

Review activity for **Polymer**. (31)

Review activity for **Polymers**. (21)

Review activity for **Processes** (2)

Review activity for **Recent Advances in Drug Delivery and Formulation**. (3)

Review activity for **Renewable & Sustainable Energy Reviews**. (4)

Review activity for **Renewable Energy**. (3)

Review activity for **Results in Chemistry**. (4)

Review activity for **RSC Advances** (2)

Review activity for **Small**. (2)

Review activity for **Surfaces and Interfaces**. (2)

Review activity for **Total Environment Advances**. (1)

Review activity for **Total Environment Research Themes**. (2)

Review activity for **Waste and Biomass Valorization**. (3)

Review activity for **Water**. (1)

Review activity for **Wood Science and Technology**. (2)

Attendant in International Conference

1. **1st International Conference on Science and Humanities for Sustainable Development (ICSHSD-2025)**, 23–24 October 2025, Dhaka University of Engineering & Technology (DUET), Gazipur, Bangladesh. Participated as a Speaker. Presentation Title: **Lignin Reinforced Conductive Hydrogels with Antibacterial Properties for Flexible Supercapacitor Applications**.
2. **2nd International Conference on Recent Advances in Chemistry (ICRAC-2024)**, 31 January to 01 February 2025, Department of Chemistry, Jagannath University, Dhaka. Participated as a Speaker. Presentation Title: **Flexible High Electrochemical Collagen/Lignin Composite Hydrogel For Sensing And Supercapacitor Applications**.
3. **BCSIR CONGRESS-2023**, 8-10 March 2024, BCSIR, Dhaka. Participated as a Speaker. Presentation Title: **Development of Fe³⁺ rich mussel-inspired collagen-based composite hydrogel for antibacterial, electricity harvesting and sensing applications**.
4. **2nd CSIR-BCSIR Symposium on “Advancement in Material Characterization: A Glimpse into Diverse Applications”** 14-16 February, 2024, CLRI, Chennai India. Participated as a speaker. Presentation Title: **Facile strategy of collagen-based lignin functionalized hydrogel for antibacterial, electricity harvesting, sensing and supercapacitor applications**.

5. **BCSIR, Bangladesh-CSIR, India Joint Symposium** 31 May 2023, BCSIR, Dhaka. Participated as a speaker. Presentation Title: **Design of Fe³⁺-rich, High-Conductivity Lignin Hydrogels for Supercapacitor and Sensor Applications.**
6. **International Symposium on Biorefining, Papermaking, and Lignocellulosic Materials (ISBPLM) 2021, May 18~19, 2021, Tianjin, China.** Participated as a speaker and a Poster presenter. Presentation Title: Preparation of lignosulfonate ionic hydrogel for supercapacitor, sensor and dye adsorbent applications. Poster Title: **Conversion of Loblolly pine biomass residues to bio-oil in a two-step process: Fast pyrolysis in the presence of zeolite and catalytic hydrogenation.**
7. **The 2nd National Symposium on Lignin Science and Technology Cum Light Industry Technology Development Forum**, April 27-29, 2021, Guangzhou, China.
8. **Pyro Asia 2020 E-Symposium, 2nd International Symposium on Analytical and Applied Pyrolysis**, Dec 11-13, 2020. Participated as a speaker. Presentation Title: **Preparation and characterization of various kraft lignins and impact on their pyrolysis behaviors.**
9. **BCSIR Congress 2019**, Venue: BCSIR, Dhanmondi campus, Dhaka-1205, Bangladesh. Held on 12-14 December 2019, organized by ‘Bangladesh Council of Scientific & Industrial Research’ and ‘IUFRO WP 5.07.03’. Participated as a speaker. International Seminar; Presentation Title: **Study the effect of inherent sulfur and its salts during pyrolysis of Kraft lignin isolated from linerboard and bleach grade black liquors.**
10. **2020 Jiangsu postgraduate wood fiber biomass chemistry and materials academic innovation forum**, organized by “Nanjing Forestry University, China”, 17~18 August, 2020. Participated as a speaker. Presentation Title: **Effect of using regenerated combined FAU and MOR zeolites as catalysts during the pyrolysis of kraft lignin.** Honored First Prize and Outstanding Student Performance Award.
11. Doctoral Group of the School of Materials Engineering of Fujian Agriculture and Forestry University in the “Building Scientific Ethics and Academic Style” and “The First Postgraduate Academic Forum”, 2021.

Award

1. **Excellent graduate-2022**, International College, Fujian Agriculture and Forestry University, Fuzhou, Fujian, P.R. China.

2. **Chinese government outstanding international student scholarship in the year of 2020**, China Scholarship Council.
3. **First prize and best presentation award** at the ‘2020 Jiangsu postgraduate wood fiber biomass chemistry and materials academic innovation forum’ Nanjing Forestry University, Nanjing, P. R. China, 17-18 August, 2020.
4. **3rd presentation award** at the ‘Doctoral Group of the School of Materials Engineering of Fujian Agriculture and Forestry University in the “Building Scientific Ethics and Academic Style” and “The First Postgraduate Academic Forum” May 29, 2021.

Obtained Training in Home & Abroad

1. **The 53rd Understanding Training on ISO/IEC 17025:2017**, 31 December 2024 to 2 January 2025, Organized by **Bangladesh Accreditation Board**, Ministry of Industries, Motijheel C/A, Dhaka-1000.
2. **Awareness training as per ISO/IEC 17043:2023 & PTP statistics as per ISO 13528: 2022**, 24 November 2024, INARS, BCSIR, Dhaka. Organized by **USDA BTF Project**.
3. **2017 Training Course on Biogas Technology, Rural Energy and Environmental Protection for Developing Countries**, 5 May to 29 June 2017. Organized by **Biogas Institute of Ministry of Agriculture**, Chengdu, Sichuan, P. R. China.
4. **Environmental Issues on Project Management**, 12-16 March, 2017. Organized by **National Academy for Planning & Development**, Ministry of Planning, Nilkhet, Dhaka
5. **Training-workshop on ISO/IEC-17025 Laboratory Accreditation, Requirements and Procedures**, 11-12 April, 2026. Organized by BCSIR, Dhanmondi, Dhaka-1205.
6. **Training of Method Validation and Traceability and External & Internal Control Programs**, 09-10 March, 2016. Organized by **Bangladesh Accreditation Board**, Ministry of Industries, Motijheel C/A, Dhaka-1000.
7. **1st Foundation Training Course, BCSIR**, 04 August to 03 October, 2014. Organized by **BCS Administration Academy**, Shahbagh, Dhaka.

References

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Relationship: PhD Supervisor	Relationship: Research Supervisor	Relationship: PhD Co-Supervisor

I, to best of my knowledge & belief certify that, this correctly describes my qualifications & me.
I understand any willful misstatement described here may lead to my disqualification.

Dr. Ajoy Kanti Mondal
June, 2026