

**Curriculum Vitae
of
Dr. Ajoy Kanti Mondal**

Contact Address:

Dr. Ajoy Kanti Mondal

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Dr. Ajoy Kanti Mondal is working on the development of multifunctional lignin based hydrogel for the applications of supercapacitor, sensor, antimicrobial, flexible electronics and energy storage devices. His expertise includes pyrolysis, bio-oil, adsorption as well as biomass and biogas. He obtained his PhD degree in Forestry Engineering under the College of Material Engineering in Fujian Agriculture and Forestry University, China. He obtained his MS degree in Physical chemistry from University of Dhaka, Bangladesh in 2011 and B.Sc degree in Chemistry from the same university in 2010. He secured first class first position in MS degree. He worked as Scientific Officer in Bangladesh Council of Scientific and Industrial Research from 2013 to 2019. Now he is working as Senior Scientific Officer in Leather Research Institute, Bangladesh Council of Scientific and Industrial Research, Savar, Dhaka-1350. Dr. Ajoy is responsible for planning, undertaking, supervising and executing R&D program of a research section and for undertaking other investigating works & experimental studies assigned by the authority especially the industrial problems related to biomass and fuel.

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. He pyrolyzed lignin to produce bio oil and upgraded the bio oil as well. He has good expertise in adsorption, adsorption kinetics, Biomass 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

Published Paper

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

First Author Publications:

1. 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). **IF: 5.0; Q1.**
2. [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. **Q1, IF: 8.2.**
3. [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, no. 3 (2022): 766-778. **Q1, IF: 6.988.**
4. Alemu, Digafe, 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). **Q2, IF: 3.3.**

5. [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. **Q1, IF: 6.953**.
6. [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. **Q1, IF: 6.953**.
7. [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. **Q1, IF: 6.953**.
8. [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. **Q1, IF: 4.191**.
9. [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, no. 8 (2020): 3310-3320. **Q1, IF: 4.326**.
10. [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, no. 1 (2020). **Q2, IF: 1.747**.
11. [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, no. 1 (2020): 1-13.
12. [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, no. 4 (2018): 200-204.

Co-Author Publications

1. 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. **Q1, IF: 16.744.**
2. 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. **Q1, IF: 13.273.**
3. 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.. **Q1, IF: 13.273.**
4. Sun, Haodong, 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. **Q1, IF: 10.723.**
5. 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. **Q1, IF: 8.2.**
6. Shashanka Shekhar Sarker, Taslima Akter, Sahana Parveen, Md Tushar Uddin, [Ajoy Kanti Mondal](#), and SM Asaduzzaman Sujun. "Microalgae-based green approach for effective chromium removal from tannery effluent: A review." *Arabian Journal of Chemistry* (2023): 105085. **Q1, IF: 6.2.**
7. 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). **Q2, IF: 2.79.**
8. 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, no. 18 (2023): e53805. **Q2, IF: 3.05.**
9. Zuwu Tang, Meiqiong Yu, [Ajoy Kanti Mondal](#), and Xinxing Lin. “Porous Scaffolds Based on Polydopamine/Chondroitin Sulfate/Polyvinyl Alcohol Composite Hydrogels.” *Polymers* 15, no. 2 (2023): 271. **Q1, IF: 4.967.**
 10. 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. **Q1, IF: 8.129.**
 11. 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, no. 4 (2022): 2497-2511. **Q1, IF: 5.044.**
 12. 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. **Q1, IF: 4.21.**
 13. 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, no. 12 (2020): 3071. **Q1, IF: 4.967.**
 14. 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, no. 18 (2023): e53805. **Q2, IF: 3.125.**
 15. Digafe Alemu, Mesfin Tafesse, and [Ajoy Kanti Mondal](#). “Mycelium-based composite: The future sustainable biomaterial.” *International journal of biomaterials* 2022 (2022). **Q2, IF: 3.386.**
 16. 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. **Q3, IF: 2.975.**

17. 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, no. 3 (2016): 203-214.
18. 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, no. 3 (2015): 163-168.
19. 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, no. 3 (2017).

Attendant in International Conference

1. **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.
2. **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.
3. **The 2nd National Symposium on Lignin Science and Technology Cum Light Industry Technology Development Forum**, April 27-29, 2021, Guangzhou, China.
4. **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.
5. **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.

6. **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.
7. 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.

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
August, 2023.