

Hui Chen, Ph.D.

10101 twin rivers road, Apt m15, Columbia, MD, 21044 | 1-6319949866 (cell)|
huic1@umbc.edu

Education

Ph.D. Chemistry	GPA 3.73/4.00	Stony Brook University (USA)	Jan. 2021
B.S. Chemistry	GPA 3.52/4.00	Nanjing Normal University (China)	Jun. 2016

Research Experience

Post-doctoral research associate at UMBC **Since April.2021**

- Nutrient recovery from urine by Donnan Dialysis system using tubular membrane reactor.
- Advancement in Donnan Dialysis reactors: Construction of tube-in-tube reactor for efficient nutrient recovery.
- USDA project-Efficient nutrient recovery from animal manure using hollow-fiber ion exchange membrane.

Advisor: Prof. Lee Blaney

Graduate research assistant at Stony Brook University (SBU) **2016-2021**

- Fabrication and extraction of carboxyl-cellulose nanofiber by Nitro-oxidation method (NOCNF) from different biomass source (such as jute fiber, wood pulp, moringa and sorghum stalks, etc.)
- Modification on cellulose nanofiber (CNF) for metal ions remediation. (Arsenic(III) removal in drinking water)
- Application in heavy metal ions remediation (Hg(II), Tl(I), Cu(II), Co(II) and Ni(II)) by NOCNF extracted from different biomass.
- Fundamental study of Nitro-oxidation method by exploring the composition in reaction effluent by HPLC-MS measurement under different reaction conditions.
- Scaling project for Nitro-oxidation method for an industry scale in collaboration with NORAM Co. in Canada and ACE GLASS Co. in USA.
- Experience in wastewater filtration with self-designed cost-efficient enhanced sand-bag for Charity Organization in China.

Advisor: Prof. Benjamin Hsiao

Undergraduate research at Nanjing Normal University **Aug.2014-Jun. 2016**

- Project of Nanjing Normal University Innovation Training Plan (Research of New Anticoagulant Coating Technology)
- Preparation of anti-biofouling nanomaterials and their applications for whole blood detection.

Advisor: Prof. Chun Mao

Publications

- **Hui Chen**, Michael Rose, Michael Fleming, Sahar Soueizi, Utsav Shashvatt, Lee Blaney, “Recent Advances in Donnan Dialysis Technologies for Water/wastewater Treatment and Resource Recovery: A Critical Review.” Submitted to Chemical Engineering Journal.
- **Hui Chen**, Kaylyn Stewart, Fabian Amurrio, Utsav Shashvatt, Lee Blaney, “Sustainable Nutrient Recovery from Synthetic Urine by Donnan Dialysis Using Tubular Ion Exchange Membranes.” Submitted to Environmental Science and Technology.
- **Hui Chen**, Fabian Amurrio, Kaylyn Stewart, Lee Blaney, “Tube-in-Tube Reactor: Advancement in Donnan Dialysis Reactor for Efficient Nutrient Recovery.” In Preparation.
- **Hui Chen**, Sunil K. Sharma, Priyanka R. Sharma, Heidi Yeh, Ken Johnson, and Benjamin S. Hsiao. "Arsenic (III) Removal by Nanostructured Dialdehyde Cellulose– Cysteine Microscale and Nanoscale Fibers." ACS Omega 2019, 4, 26, 22008-22020.
- **Hui Chen**, Sunil K. Sharma, Priyanka R. Sharma, Kai Chi, Eric Fung, Katherine Aubrecht, Ngonye Keroletswe, Samuel Chigome and Benjamin S. Hsiao. “Nitro-oxidized Carboxycellulose Nanofibers from Moringa Plant: Effective Bioadsorbent for Mercury Removal” Cellulose, 2021, <https://doi.org/10.1007/s10570-021-04057-5>.
- **Hui Chen**, Kai Chi, Rangjian Cao, Sunil K. Sharma, Duning Li, Priyanka R. Sharma, Benjamin S. Hsiao, “Nitro-Oxidation Process for Fabrication of Efficient Bioadsorbent from Lignocellulosic Biomass by Combined Liquid-Gas Phase Treatment” Carbohydrate Polymers Technologies and Applications, 2022, 100219.
- **Hui Chen**, Priyanka R. Sharma, Sunil K. Sharma, Eric Fung and Benjamin Hsiao “An Efficient Removal of Thallium by Green and Cost-effective Scaffold Prepared by Nitro-oxidation on Sorghum Stalk”, submitted to Nanomaterials.
- Wu Yun, Yanyan Wang, **Hui Chen**, Shanshan Ge, Jinling Zhang, Chun Mao, Hongyan Ding, and Jian Shen. "Preparation and Biocompatibility of Gold@ Polypyrrole- Chitosan with Core–Shell Nanostructure". Journal of nanoscience and nanotechnology **2016**, 16, 3, 2343-2349.
- Priyanka R. Sharma, Sunil K. Sharma, Simon Lin, **Hui Chen**, William Borges and Benjamin S. Hsiao “Reinforcement of Natural Rubber Latex Using Jute Carboxycellulose Nanofibers Extracted using Nitro-oxidation Method”. Nanomaterials 2020, 10, 4, 706.
- Sharma, Sunil Kumar; Sharma, Priyanka; **Hui, Chen**; Johnson, Ken; Zhan, Chengbo; Wang, Ruifu; Hsiao, Benjamin. "Cellulose Supported Nanosized Zinc Oxide: A Highly Efficient Bionanomaterial for Removal of Arsenic Impurities from Water". Current Status of Environmental Research on Water Contaminants in ACS book, 2020, Chapter 12, 253-267.
- Sharma, Priyanka; Sharma, Sunil; Borges, William; **Hui, Chen**; Hsiao, Benjamin "Remediation of UO_2^{2+} from Water by Nitro-oxidized Carboxycellulose Nanofibers:

Performance and Mechanism". Current Status of Environmental Research on Water Contaminants in ACS book, 2020, Chapter 13, 269-283.

Conference presentations

- **Chen, Hui;** Sunil K. Sharma; Priyanka R. Sharma; Heidi Yeh; Ken Johnson and Benjamin S. Hsiao. " Efficient removal of Arsenic (III) by novel micro and nano dialdehyde cellulose-cysteine complex extracted from wood pulp cellulose." 257th ACS National meeting, 2019, Orlando, Oral presentation.
- **Chen, H.;** Stewart, K.; Amurrio, F.; Shashvatt, U.; Blaney, L. Advances in Donnan dialysis reactor configuration for efficient nutrient recovery. Spring 2022 ACS National Meeting (San Diego, CA), March 20-24, 2022.
- **Chen, H.;** Stewart, K.; Amurrio, F.; Shashvatt, U.; Blaney, L. Advances in Donnan dialysis reactor configuration for efficient nutrient recovery. 2022 AEESP Conference (Saint Louis, MO), June 28-30, 2022.
- **Chen, Hui;** Benjamin S. Hsiao. Nitro-Oxidation Process for Fabrication of Efficient Bioadsorbent from Lignocellulosic Biomass by Combined Liquid-Gas Phase Treatment. 2022 International Conference on Frontier Materials (Zoom), May 27-31, 2022.
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- Shashvatt, U.; **Chen, H.;** Amurrio, F.; Stewart, K.; Portner, C.; **Blaney, L.** Phosphorus recovery by Donnan dialysis: Membrane selectivity, diffusion coefficients, and speciation effects. Spring 2022 ACS National Meeting (San Diego, CA), March 20-24, 2022.
- Shashvatt, U.; **Chen, H.;** Amurrio, F.; Stewart, K.; Raphael, M.; Bobby, A.; Portner, C.; **Blaney, L.** Development of sustainable Nutrient Extraction and Recovery Devices (NERDs) for municipal and agricultural wastewater. 2022 INFEWS PI Workshop (Princeton, NJ), February 9-11, 2022.

Teaching Experience

Guest Lecturer at University of Maryland Baltimore County

Sep. 2021

- Environmental Chemistry (ENCH 410 & 610)

Teaching assistant at Stony Brook University

Since Aug.2016

- General Chemistry Lecture TA for two semesters.
- General Chemistry Lab TA for one semester.
- Organic Chemistry Lecture TA for four semesters.
- Organic Chemistry Lab TA for one semester.

Mentoring Experience

- Heidi Yeh, Undergraduate Student (SBU), Arsenic (III) Removal by Nanostructured Dialdehyde Cellulose– Cysteine Microscale and Nanoscale Fibers, 2017-2018;

- Eric Fung, Undergraduate Student (SBU), Nitro-oxidized Carboxycellulose Nanofibers from Moringa Plant: Effective Bioadsorbent for Mercury Removal, 2018-2019;
- Rangjian Cao, Undergraduate Student (SBU), Nitro-Oxidation Process for Fabrication of Efficient Bioadsorbent from Lignocellulosic Biomass by Combined Liquid-Gas Phase Treatment, 2019-2020,
- Kaylyn Stewart, Undergraduate Student (UMBC), Sustainable Nutrient Recovery from Synthetic Urine by Donnan Dialysis Using Tubular Ion Exchange Membranes, 2021-now
- Fabian Amurrio, Undergraduate Student (UMBC), Sustainable Nutrient Recovery from Synthetic Urine by Donnan Dialysis Using Tubular Ion Exchange Membranes, 2021-now