

Raisa Carmen Andeme Ela, Ph.D.

Chemical Engineer

✉ r.andeme.ela@nyu.edu • 📞 +1 (646) 997-3620 • 🌐 www.raisaelaphd.com • [in](#) LinkedIn • [R](#) ResearchGate • [G](#) Google Scholar • 🆔 0000-0002-2096-4582

Professional Appointments

Postdoctoral Associate with [Prof. Miguel Antonio Modestino](#) Brooklyn, NY
Department of Chemical and Biomolecular Engineering Sep. 2024
New York University (NYU)

Postdoctoral Associate with [Prof. Hua Zhao](#) Twin Cities, MN
Department of Bioproducts and Biosystems Engineering Jul. 2023-Jan. 2024
University of Minnesota (UMN)

Postdoctoral Associate with [Prof. Paul J. Dauenhauer](#) Twin Cities, MN
National Science Foundation-Center for Sustainable Polymers May 2021-Jun. 2023
Department of Chemical Engineering and Material Science
University of Minnesota (UMN)

Education and Training

Michigan Technological University (MTU) Houghton, MI
Ph.D. in Chemical Engineering, GPA: 3.89/4.00 Aug. 2018-Dec.2020
Thesis: Innovative Sustainable Wood Preservative from Pulp and Paper Industry Byproduct.
Advisor: [Prof. Rebecca G. Ong](#)

Harvard Online Business School
CERT. in Entrepreneurship Essentials Jan.-Feb. 2020

University of New Mexico (UNM) Albuquerque, NM
M.S. in Chemical Engineering, GPA: 3.74/4.00 Aug. 2017-May 2018

National Council of Examiners for Engineering and Surveying (NCEES)
CERT. in Fundamentals of Engineering 2017

University of New Mexico (UNM) Albuquerque, NM
B.S. in Chemical Engineering 2017
Concentration: Chemical processes

Research Experience

Graduate Research Assistant with [Prof. Rebecca G. Ong](#) Houghton, MI
Great Lakes Bioenergy Research Center (GLBRC) Summer 2019, 2020

Graduate Researcher with [Prof. Plamen Atanassov](#), [Prof. Nick Carroll](#),
and [Prof. Jeffrey Brinker](#) (Supervised by [Prof. Achraf Nouredine](#)) Albuquerque, NM
July 2017-June 2018

Peer-Reviewed Publications

1. **Raisa Carmen Andeme Ela**, Patricia Heiden. *The Next Generation of Lignin Smart Nanoparticles for Resource Recovery from Wastewater*. ACS Sustainable Resource Management, 2024. DOI 10.1021/acssusresmg.3c00051. Graphic selected As Journal Front Cover Image. [\[Link\]](#)

2. **Raisa Carmen Andeme Ela**, Jorge Barroso, Gaurav Kumar, Kaivalya Gawande, Manish Shetty, Xinyu Li, Wei Fan, Bess Vlasisvljevich, Paul J. Dauenhauer. *Sulfurous Zeosils for Dehydra-Declyzation of Tetrahydrofuran to Renewable Butadiene*. RSC Green Chem., 2024, 26. DOI 10.1039/d3gc03090c. [Article selected in 'Hot Articles' Collection.](#) [[Link](#)]
3. **Raisa Carmen Andeme Ela**, Saad Raza, Patricia Heiden, Josh Vermaas, Rebecca G. Ong. *Lignin Nanoparticle Morphology on Polymer Depends on Polymer Chemical Properties and Solvent Composition: An Experimental and Computational Study*. ACS Appl. Polym. Mater., 2022, 4(10). DOI 10.1021/acsapm.2c00854. [[Link](#)]
4. **Raisa Carmen Andeme Ela**, Sarvada H. Chipkar, Tara Bal, Xinfeng Xie, Rebecca G. Ong. *Lignin-Propiconazole Nanocapsules Are an Effective Bio-based Wood Preservative*. ACS Sus. Chem. Eng., 2021, 9(7). DOI 10.1021/acssuschemeng.0c07742. [[Link](#)]
5. **Raisa Carmen Andeme Ela**, Momoko Tajiri, Nick K. Newberry, Patricia Heiden, Rebecca G. Ong. *Double Shell Lignin Nanocapsules Are a Stable Vehicle for Fungicide Encapsulation and Release*. ACS Sus. Chem. Eng., 2020, 8(46). DOI 10.1021/acssuschemeng.0c06686. [[Link](#)]
6. **Raisa Carmen Andeme Ela**, Lauren Spahn, Niloofar Safaie, Robert Charles Ferrier, Jr., Rebecca G. Ong. *Understanding The Effect of Precipitation Process Variables on Hardwood Lignin Characteristics and Recovery from Black Liquor*. ACS Sus. Chem. Eng., 2020, 8(37). DOI 10.1021/acssuschemeng.0c03692. [[Link](#)]

Selected Honors and Awards

American Chemical Society (ACS) - Bridge Career Kick-Starter Workshop Selected participant	2024
American Chemical Society (ACS) - Postdoc to Faculty Workshop Selected participant	2024
Royal Society of Chemistry (RSC) – Online Poster Competition <i>Catalysis Section, 2nd Place</i>	2024
Diversity, Equity, Action and Service (IDEAS) Award Dept. of Chemical Engineering and Materials Science, UMN, Winner	2023
Minnesota Crucible Prize pitch competition Dept. of Chemical Engineering and Materials Science, UMN, 3rd Place	2023
Janice Lumpkin Travel Award American Institute of Chemical Engineers-Minority Affairs Community, Winner	2022
AIChE Education Division Future Faculty Mentee American Institute of Chemical Engineers, Selected participant	2022-2023
Postdoctoral Fellowship NSF Center for Sustainable Polymers, UMN, Recipient	2021-2023
Catalysis and Reaction Engineering Division American Institute of Chemical Engineers, Highlight	2022
Diversity and Inclusion Division-Midland American Chemical Society, Earth Month Highlight	2022
Chemical Engineering Rising Stars Massachusetts Institute of Technology (MIT), Honoree	2021
External Advisory Board, Graduate Research Poster Competition	2019, 2020

MTU, 2nd Place

Undergraduate Scholarship

2010-2017

Equatorial Guinea National Oil Company (Gepetrol), Recipient

Poster and Oral Presentations

- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2024
Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene.
 Royal Society of Chemistry (RSC) Online Poster Competition. [2nd Place Award.](#)
- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2023
Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene.
 3M Poster Session, UMN. [One \(1\) of 40 posters accepted.](#)
- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2023
Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene.
 NSF Center for Sustainable Polymers Annual Meeting.
- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2023
Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene.
 “Celebrating Scientific & Engineering Research of Minority Chemists that Address the Grand Challenges of the 21st Century.” ACS Spring Conference. [\(Invited\).](#)
- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2023
Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene. “Sustainable Catalytic Pathways to C3 Molecules.” ACS Spring Conference.
- Raisa Carmen Andeme Ela**, Paul J. Dauenhauer. 2022
Boron-, Phosphorus-, and Sulfur-containing Siliceous Zeolites for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene. AIChE Annual Conference.
- Raisa Carmen Andeme Ela**, Gaurav Kumar, Xinyu Li, Manish Shetty, Wei Fan, Paul J. Dauenhauer. 2022
Thermochemical modulation on Phosphorus-, Boron-, and Sulfur-containing Siliceous Zeolites for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene. ACS Fall Conference.
- Raisa Carmen Andeme Ela**, Gaurav Kumar, Xinyu Li, Manish Shetty, Wei Fan, Paul J. Dauenhauer. 2022
Thermochemical modulation on Phosphorus-, Boron-, and Sulfur-containing Siliceous Zeolites for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene. Catalysis-Gordon Research Conference.
- Raisa Carmen Andeme Ela**, Tara Bal, Xinfeng Xie, Rebecca G. Ong. 2020
Lignin-Propiconazole Nanocapsules Are an Effective Bio-based Wood Preservative.
 External Advisory Board Poster Competition. MTU. [2nd Place Award.](#)
- Raisa Carmen Andeme Ela**, Tara Bal, Xinfeng Xie, Rebecca G. Ong. 2020
Lignin-Propiconazole Nanocapsules Are an Effective Bio-based Wood Preservative.
 AIChE Annual Conference.
- Raisa Carmen Andeme Ela**, Patricia Heiden, Rebecca G. Ong. 2019
Double Shell Lignin Nanocapsules Are a Stable Vehicle for Fungicide Encapsulation and Release.
 External Advisory Board Poster Competition. MTU. [2nd Place Award.](#)
- Raisa Carmen Andeme Ela**, Lauren Spahn, Rebecca G. Ong. 2019
Understanding The Effect of Precipitation Process Variables on Hardwood Lignin Characteristics and Recovery from Black Liquor.
 ACS Upper Peninsula Spring Research Symposium.

Raisa Carmen Andeme Ela, Lauren Spahn, Rebecca G. Ong. 2019
Understanding The Effect of Precipitation Process Variables on Hardwood Lignin Characteristics and Recovery from Black Liquor.
Graduate Student Government, MTU. Spring Graduate Symposium.

Seminars

Sulfurous Zeozils for Renewable Tetrahydrofuran Dehydra-Decyclization to Butadiene. 2023
“Biomass to Bio-based Chemicals and Materials.”
Gordon Research Seminar. [Invited speaker and welcoming session moderator.](#)

Innovative Sustainable Wood Preservatives from Pulp and Paper Industry By-product. 2020
Chemical Engineering Graduate Seminar Series. MTU

Research Support Grants

Minimum Viable Product Challenge Grant 2023
MIN-Corps, UMN Site of NSF National Innovation Corps., \$5,000 research and development grant

Mistletoe Research Fellowship 2022-2023
Momental Foundation, \$10,000 grant ([1 of 32 selected fellows; out of a pool of 430 candidates](#))

Teaching and Mentoring

Instructor

[\[Link to student reviews\]](#)

UMN

Bioproducts Separation and Purification Processes. 2023
Transport Phenomena: Momentum and Heat. 2022

Teaching Assistant

[\[Link to course instructor evaluations\]](#) 2017-2020

MTU

Advanced thermodynamics for chemical engineers.
Advanced transport phenomena for chemical engineers.
Applied mathematics for chemical engineers.
Computer-aided problem solving in chemical engineering.
Graduate laboratory safety.
Mineral processing and extraction (with laboratory).
Undergraduate thermodynamics for chemical engineers.

UNM

General chemistry I & II.

Mentoring

Caning Wang, Ph.D. Student, Modestino Group Sept. 2024
Department of Chemical and Biomolecular Engineering, NYU

Lydia Anderson, Summer Researcher, Zhao Group Jul.-Dec. 2023
Department of Bioproducts and Biosystems Engineering, UMN

Sophie A. Brauer, Ph.D. Student, Dauenhauer Group 2021-2023
Department of Chemical Engineering and Materials Science, UMN.

Lauren Spahn, B.S. Student, Ong Group.
Department of Chemical Engineering, MTU

2018-2020

Professional Memberships, Service and Outreach

Active Memberships in Professional Organizations

New York Academy of Sciences (NYAS)
Royal Society of Chemistry (RSC)
National Organization for the Professional Advancement of Black Chemists and Chemical engineers (NOBCChE)
American Chemical Society (ACS)
American Institute of Chemical Engineers (AIChE)

Selected Service and Outreach

Minority Affairs Committee (MAC) – AIChE, Secretary	2024-Present
BioRender, Brand Ambassador	2023-Present
MN State Science and Engineering Fair, Volunteer	2023
Postdoctoral Association, UMN, Chair for communication and outreach	2022-2023
NOBCChE, MTU, Vice-president	2020
Edison High School, Minneapolis, MN, Chemistry Outreach and Volunteering.	2022
Bell Museum, Minneapolis, MN, Summer Camp Outreach.	2022
Senior design poster exhibition, MTU, Judge.	2019, 2020

Scientific Journal Article and Scholarship Reviewer

2021-Present

ACS Omega, Colloid and Polymer Science, ACS Sustainable Chemistry & Engineering, BioResources, Current Drug Therapy, ACS Agricultural Science and Technology, Small Methods, European Journal of Wood and Wood Products, Springer Nature, Wood Material Science and Engineering, Proposals: U.S. Department of Energy, Office of Science Graduate Student Research

Languages

Native: Spanish, English, Fang (Equatorial Guinea)
Basic level: French, Portuguese
