

Mahmoud A. Sharara, Ph.D.

Department of Biological & Agricultural Engineering
 North Carolina State University
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 Raleigh, NC 27695
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PROFESSIONAL APPOINTMENTS**Assistant Professor**

August 2018 – Present

North Carolina State University
 Department of Biological & Agricultural Engineering
 Raleigh, NC

Assistant Scientist

September 2017 – August 2018

University of Wisconsin-Madison
 Biosystems Engineering Department & Wisconsin Energy Institute (WEI)

Postdoctoral Research Associate

May 2015 – September 2017

University of Wisconsin-Madison
 Biosystems Engineering Department & Wisconsin Energy Institute (WEI)

EDUCATION**Ph.D., Biological and Agricultural Engineering**

2010 – 2015

University of Arkansas, Fayetteville
 Dissertation: Transformation of Swine Manure and Algal Consortia to Value-Added Products

M.S., Biological and Agricultural Engineering

2008 – 2010

University of Arkansas, Fayetteville
 Thesis title: Biodrying-gasification of dairy manure-wheat straw mixture

B.Sc., Agricultural Engineering

1999 - 2003

Alexandria University, Alexandria, Egypt

PUBLICATIONS**Book Chapter**

- **Mahmoud A. Sharara**, Edgar C. Clausen, and Danielle Julie Carrier. An Overview of Biorefinery Technology. In *Biorefinery Co-Products: Phytochemicals, Primary Metabolites and Value-Added Biomass Processing*. John Wiley & Sons, 2012.

Peer-reviewed Publications

1. **Mahmoud A. Sharara**, and Sammy S. Sadaka. "Opportunities and Barriers to Bioenergy Conversion Techniques and Their Potential Implementation on Swine Manure." *Energies*. 2018. 11(4) (2018), 957.
2. **Mahmoud A. Sharara**, Troy Runge, Rebecca Larson & John G. Primm. Techno-economic optimization of community-based manure processing. *Agricultural Systems*. 2018. 161, 117-123.
3. Kim, Seungdo, Xuesong Zhang, Bruce Dale, Ashwan Daram Reddy, Curtis Dinneen Jones, Keith Cronin, Roberto Cesar Izaurralde, Troy Runge, and **Mahmoud A. Sharara**. "Corn stover cannot simultaneously meet both the volume and GHG reduction requirements of the renewable fuel standard." *Biofuels, Bioproducts and Biorefining* (2017).

4. **Mahmoud A. Sharara**, Apoorva Sampat, Laura W. Good, Amanada S. Smith, Pamela Porter, Victor M. Zavala, Rebecca Larson and Troy Runge. Spatially explicit methodology for manure management at the watershed level. *Journal of Environmental Management*. 2017. 192: 48-56.
5. Renil Anthony, **Mahmoud A. Sharara**, Troy Runge and Robert Anex. Life Cycle Comparison of Petroleum- and Bio-based Paper Binder from Distillers Grains (DG). 2017. *Industrial Crops and Products*. 96: 1-7.
6. Zong Liu, **Mahmoud Sharara**, Sundaram Gunasekaran and Troy Runge. Effects of Large-Scale Manure Treatment Processes on Pathogen Reduction, Protein Distributions and Nutrient Concentrations. 2016, *Transactions of the ASABE*, 59(2): 695-702.
7. **Mahmoud A. Sharara**, Sammy S. Sadaka, Thomas A. Costello, Karl VanDevender, Julie Carrier, Michael Popp, Greg Thoma, and Angele Djiroleu. 2016. Combustion kinetics of swine manure and algal solids. *Journal of Thermal Analysis and Calorimetry*, 123(1): 687-696.
8. **Mahmoud A. Sharara**, and Sammy Sadaka. 2015. Gasification of Phycoremediation Algal Biomass. *BioResources*, 10(2): 2609-2625.
9. **Mahmoud A. Sharara**, Nathan Holeman, Sammy Sadaka, Thomas A. Costello. 2014. Pyrolysis kinetics of algal biomass grown on swine manure wastewater. *Bioresource Technology*, 169: 658-666.
10. Amanda J. Ashworth, Sammy S. Sadaka, Fred L. Allen, **Mahmoud A. Sharara**, and Patrick D. Keyser. 2014. Influence of Pyrolysis Temperature and Production Conditions on Switchgrass Biochar for Use as a Soil Amendment. *BioResources*, 9(4): 7622-7635.
11. Sammy Sadaka, **Mahmoud A. Sharara**, and Gagandeep Ubhi. 2014. Performance Assessment of an Allothermal Auger Gasification System for On-Farm Grain Drying. *Journal of Sustainable Bioenergy Systems* 4(1): 19-32.
12. **Mahmoud A. Sharara** and Sammy Sadaka. 2014. Thermogravimetric Analysis of Swine Manure Solids Obtained from Farrowing, and Growing-Finishing Farms. *Journal of Sustainable Bioenergy Systems* 4, (1): 75-86.
13. Sammy Sadaka, **Mahmoud A. Sharara**, Amanda Ashworth, Patrick Keyser, Fred Allen, & Andrew Wright. 2014. Characterization of Biochar from Switchgrass Carbonization. *Energies* 7, no. 2: 548-567.
14. **Mahmoud A. Sharara**, Sammy Sadaka, Thomas Costello & Karl VanDevender. (2012). Influence of aeration rate on the physio-chemical characteristics of biodried dairy manure-wheat straw mixture. *Applied Engineering in Agriculture*, 28(3): 407-415.

Meeting Papers & Presentations

1. **Mahmoud A. Sharara**, Troy M. Runge, Rebecca Larson. Economic Assessment of Coordinated Anaerobic Digestion of Dairy Manure. Assessment of coordinated anaerobic digestion of dairy manure. Livestock and Poultry Environmental Learning Center (LPELC) Webinar Series. August 2017.
2. **Mahmoud A. Sharara**, Troy M. Runge, Rebecca Larson, and John Primm. Techno-economic optimization of community-based manure processing. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Spokane, WA – July 2017.
3. **Mahmoud A. Sharara**, Troy M. Runge, Rebecca Larson. Economic Assessment of Coordinated Anaerobic Digestion of Dairy Manure. Assessment of coordinated anaerobic digestion of dairy manure. Waste to Worth 2017. Cary, NC – April 2017.
4. **Mahmoud A. Sharara**. Economic Assessment of Coordinated Anaerobic Digestion of Dairy Manure. Wisconsin Anaerobic Digestion Pre-Summit Program, Green Bay, WI – February 2017.
5. **Mahmoud A. Sharara**, Qiang Yang, Thomas L. Cox, & Troy Runge. Techno-economic assessment of dairy manure granulation. Annual International meeting of the American Society of

- Agricultural and Biological Engineering (ASABE), Orlando, FL – July 2016.
6. **Mahmoud A. Sharara**, Rebecca Larson, Troy Runge. Spatially-explicit methodology for manure management at the watershed level. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Orlando, FL – July 2016.
 7. **Mahmoud A. Sharara**, Keith Cronin, Troy Runge. Development of a multi-objective optimization framework for cellulosic ethanol supply base. Great Lakes Bioenergy Research Center (GLBRC) 2016 Annual Science Meeting, Grand Geneva Resort, Lake Geneva, WI – March 2016.
 8. **Mahmoud A. Sharara** & Sammy Sadaka. Gasification of swine manure solids as an energy and biochar production alternative. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Kansas City, MO – July 2013.
 9. **Mahmoud A. Sharara** & Sammy Sadaka (2013). Thermal degradation of raw and thermally-processed swine manure separated solids (SMSS) in oxygen and nitrogen environments. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Kansas City, MO – July 2013.
 10. **Mahmoud A. Sharara** & Sammy Sadaka (2012). Auger Reactor Gasification of Algal Blooms Produced in a Waste Water Treatment Facility. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Dallas, TX – July 2012.
 11. **Mahmoud A. Sharara**, Sammy Sadaka, Karl VanDevender & Thomas Costello (2010). Biodrying-Gasification of Dairy Manure-Wheat Straw Mixture. Mississippi State University (MSU) Biofuels Conference, Jackson, MI – August 2010.
 12. **Mahmoud A. Sharara** & Sammy Sadaka (2009). Producer gas production via biodrying-gasification of swine manure-corn stalks. Annual International meeting of the American Society of Agricultural and Biological Engineering (ASABE), Reno, NV – June 2009.

Extension Publications

1. Sammy Sadaka & **Mahmoud A. Sharara**. Carbon Footprint Tips for Arkansas Producers. University of Arkansas-Division of Agriculture.
2. Sammy Sadaka, Karl VanDevender, Thomas Costello, **Mahmoud A. Sharara**. Partial Composting for Biodrying Organic Materials. University of Arkansas-Division of Agriculture.
3. Amanda J. Ashworth, Patrick D. Keyser, Fred L. Allen, Sammy S. Sadaka, and **Mahmoud A. Sharara**. Use of Biochar in Switchgrass Production. University of Tennessee, Institute of Agriculture.

Project Reports

1. Rebecca A. Larson, **Mahmoud A. Sharara**, Laura W. Good, Pam Porter, Troy M. Runge, Victor M. Zavala, Apoorva Sampat & Amanda Smith. Evaluation of Manure Storage Capital Projects in the Yahara River Watershed. Presented to Dane County Board of Supervisors, Dane County, Wisconsin. August 2016.
2. Troy M. Runge & **Mahmoud A. Sharara**. Biogas systems analysis and peer-review of feasibility study report produced by Dynamic Concepts. Presented to Wisconsin Office of Energy Innovation. October 2016.

REVIEWING ACTIVITIES

- Environmental Impact Assessment Review - Journal – Elsevier
- Energies - Multidisciplinary Digital Publishing Institute (MDPI)
- Journal of Industrial Ecology – Journal – Wiley-Blackwell
- PLOS ONE – Journal – Public Library of Science
- ACS Sustainable Chemistry & Engineering
- Life Cycle Assessment Commons - United States Department of Agriculture (USDA)

- University of Wisconsin Cooperative Extension (UW-Extension) – Factsheets

TEACHING EXPERIENCE

University of Wisconsin-Madison **2015 - 2017**

- Guest lecture, BSE 367. Bioenergy Systems Course
- Guest lecture, BSE 461. Food and Bioprocessing Operations
- Guest lecture, BSE 461. Engineering Principles for Biological Systems

University of Arkansas, Fayetteville **2010 - 2014**

- Development of thermochemical conversion module, BENG 3653
- Guest lecture, BENG 3653. Global Bio-Energy Engineering

Alexandria University, Alexandria, Egypt **2005 - 2007**

- Development of agricultural engineering curricula for online education modules
- Development of renewable energy e-learning courses, Alexandria Renewable Energy and Academy Center (AREAC)
- Recitation sessions, undergraduate Engineering Thermodynamics course
- Recitation sessions, Food Processing & Unit Operations course
- Recitation sessions, Internal Combustion Engines course

AWARDS AND HONORS

- Discovery Challenge Research Award winner – Wisconsin Alumni Research Foundation (April 2016)
- University of Arkansas Doctoral Academy Fellowship (2010 - 2014)
- Outstanding Ph.D. student award, Biological and Agricultural Engineering Dept. (April 2013)
- First place award, Graduate Student Research Symposium (Abstract to Contract) - Biological and Agricultural Engineering Dept. (March 2013)
- Outstanding Ph.D. student, Biological and Agricultural Engineering Dept. (April 2012)
- First place award, Graduate Student Research Symposium (Abstract to Contract) - Biological and Agricultural Engineering Dept. (March 2012)
- First place award, Graduate student poster competition, American Society of Agricultural & Biological Engineers (ASABE), Arkansas Chapter meeting (October 2012)
- First place award, Graduate student poster competition, (ASABE), Arkansas Chapter meeting (October 2011)
- First place award, Graduate student poster competition, (ASABE), Arkansas Chapter meeting (October 2010)

PROFESSIONAL AFFILIATIONS

- American Society of Agricultural and Biological Engineers (ASABE) member
- American Chemical Society (ACS) member

VOLUNTEER ACTIVITIES

- Judge, Graduate Student Research Symposium (Abstract to Contract) – 2011
- Judge, Regional High School Science Bowl, University of Arkansas – 2012
- Volunteer, American Society of Agricultural Engineers (ASABE) International Meeting, Dallas, Texas – July 2012
- International Scholar Ambassador, University of Arkansas - 2009