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CIVIL & ENVIRONMENTAL ENGINEERING
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UNITED STATES

MICHIGAN STATE
UNIVERSITY

RESEARCH INTERESTS

- Proactive sustainability assessment to reduce the environmental impact of energy technologies
- Process-based life-cycle assessment and design for the environment with an emphasis on semiconductor, nanomaterials and fine chemicals production for power generation
- Nanomaterials synthesis for energy applications
- Sustainable engineering education

EDUCATION

Ph.D. Sustainability Rochester Institute of Technology (Rochester NY, USA) Dissertation: "Fabrication and life cycle assessment of organic photovoltaics"	September 2007 – May 2011 Advisors: Dr. RP Raffaele & Dr. BJ Landi
Master of Science in Materials Science and Engineering Rochester Institute of Technology (Rochester NY, USA) Thesis: "Nanomaterials for Organic Solar Cells"	March 2006 – July 2007 Advisor: Dr. RP Raffaele
Bachelor degree in Materials Engineering École Polytechnique de Montréal (Montréal, Canada)	September 2000 – December 2005

APPOINTMENTS AND RESEARCH EXPERIENCE

Michigan State University (East Lansing MI, USA) Assistant Professor, Civil and Environmental Engineering Affiliated faculty, Environmental Science & Policy Program	August 2014-
Clemson University (Clemson SC, USA) Adjunct Professor, Environmental Engineering and Earth Sciences	August 2014-
Clemson University (Clemson SC, USA) Assistant Professor, Environmental Engineering and Earth Sciences	August 2012- May 2014
Brookhaven National Laboratory (Upton NY, USA) Research Associate - National Photovoltaics Environmental Research Center <ul style="list-style-type: none">• Direct tellurium mining: resource availability and impact of CdTe PV life-cycle assessment• Greenhouse gas emissions and energy payback of large photovoltaic power plants in the northeast United States• Critical metals in strategic photovoltaic technologies: abundance versus recyclability	July 2011 – August 2012
NanoPower Research Laboratory (RIT) (Rochester NY, USA) Research Assistant – Organic Solar Cells <ul style="list-style-type: none">• Fabrication and characterization of solar cells• Synthesis and modification of nanomaterials for increased power conversion efficiency• Life cycle assessment of nanomaterials and organic solar cells	March 2006 – May 2011
United Nations Headquarter – DESA (New York NY, USA) Division for Sustainable Development <ul style="list-style-type: none">• Review of sustainability metrics for the Commission on Sustainable Development (CSD-18)• Integrated sustainable tourism development planning	June – August 2009
Arkema Research Center (King of Prussia PA, USA)	January – September 2005
Montreal and McGill University (Montreal, Canada)	May – December 2004
QIT – Rio Tinto Research Center (Sorel, Canada)	January- December 2003

SPONSORED RESEARCH

Principal Investigator

National Science Foundation CBET: Environmental Sustainability Sustainable energy transition: Beyond material analysis, \$302,035	2018-2021
Ford Motor Company Interactive Decision Analysis Tool to Guide Life Battery Energy Storage System Options, \$197,773	2018-2020
MSU DFI Sustainable nanomaterials: pyrolysis for large scale manufacturing of fullerenes, \$48,566	2017-2019
Ford Motor Company Second Life Potential and Environmental Benefit of EV Batteries in Photovoltaic Applications, \$191,900	2016-2018
National Science Foundation CBET: Energy for Sustainability SUSCHEM: A Green Chemistry Approach to Organic and Transparent Photovoltaic Material Synthesis and Device Fabrication, \$299,894	2015-2019
United Nations Headquarter – DESA Division for Sustainable Development Creation of web interface on integrated sustainable tourism development planning, \$10,000	2013-2014

Co-PI

USDA - National Institute of Food and Agriculture INFEWS Developing Pathways Toward Sustainable Irrigation across the United States Using Process-based Systems Models (SIRUS), PI: Hyndman, \$960,000	2018-2020
MSU ESPP- Interdisciplinary Team Building Initiative (ITBI), Examining the impacts of and improving decision-making processes for offshore wind development in the U.S. Great Lakes, PI Bessette, \$10,000	2018-2019
Center for Gender in Global Context (GenCen) & The Center for Advanced Study of International Development (CASID) Workshop: Intersectoral Collaboration to Support Lilongwe's Small-scale Food Sector, PI White, \$13,132	2018
Michigan Department of Environmental Quality (MDEQ) Field and Laboratory Evaluation of Polymer Coated Rubber (PCR) Modifier Asphalt, PI Kutay, \$77,524	2017-2018
Michigan Applied Public Policy Research Program Understanding Public Opinion on Energy Transitions in Michigan, PI Moore, \$25,000	2017-2018
MSU Science + Society @ State (S3) Societal Perception about On-Road Wireless Charging for Electric Vehicles: Considering Mobility and Environmental Impacts, PI Ghamami, \$10,000	2017
MSU Science + Society @ State (S3) Linking Engineering and Science Studies to Support a Transition to Sustainable Energy, PI Moore, \$10,000	2016-2017
Clemson Transformative Initiative for Generating Extramural Research (TIGER) Life-Cycle Assessment of Li-ion Batteries: Increasing Accuracy and Decreasing Bias within Battery Environmental Impact Predictions Co-PI, PI Kennedy, \$20,000	2014-2015
US Department of Energy: Solar Decathlon Clemson University's Solar Decathlon 2015, PI Blouin	2014 – 2016

HONORS AND AWARDS

- Academy for Global Engagement Fellow - MSU 2017-2018
- Fonds québécois de la recherche sur la nature et les technologies (FQRNT) Scholarship Program (2007-2010)
- Best student presentation Area 10: 35th IEEE Photovoltaic Specialists Conference (2010)
- Excellence in Science National Grand Prize Quebec (2004)
- American Society for Materials (ASM) school chapter annual prize (2004)

TEACHING

* indicates new course developed *F: Fall, S: Spring*

Michigan State University (CE: Civil Engineering, ENE: Environmental Engineering)

**CE371: Sustainable Civil and Environmental Engineering Systems* *F16, S17, S18, F18*

Undergraduate requirement CE & ENE – The class introduces sustainability concepts and sustainable engineering design process to prepare a new generation of civil & environmental engineers to address complex societal problems. The application of system approach is presented with real world applications in the area of civil & environmental systems planning. The class introduces various tools such as life cycle assessment, design for X (DfX), industrial ecology and multi-criteria decision analysis. A project is used to evaluate students' ability to use these tools and a sustainable solution to a given problem.

**ENE492: Life cycle assessment of energy technologies* *S16*

Undergraduate and graduate elective (all engineering – recommended for Energy Minor) Life-cycle assessment (LCA) is a well-established methodology commonly used to evaluate the environmental impact of a product throughout all the stages of its life, from cradle-to-grave. The focus of this class is toward the use of LCA for energy technologies, where it can provide a systematic method to evaluate tradeoffs between various energy options and guide energy choices. The lectures address the environmental impact of energy technologies and life cycle assessment methodology while computer laboratory are used to learn energy modeling tools for various energy options and life cycle assessment software. A project is used to assess students' ability to apply LCA methodology to evaluate a proposed energy change.

**UGS101: Freshman Seminar: Sustainability Leadership* *S15& S16*

Undergraduate elective non-engineering - Participants learn and apply critical thinking skills to understand economic, social, and environmental sustainability in the context of personal lifestyle choices, the structure of the built environment, and the operation of institutions. Students work across disciplinary lines to strengthen their critical thinking skills to become agents of change in the university and the broader community. Students explore fundamental issues with defining sustainability and discuss multi-dimensional problems by analyzing how their values, actions, and choices relate to sustainability issues.

ENE272: Civil & Environmental Engineering Analysis – Engineering Economics *F15, S16*

Undergraduate requirement CE & ENE- The purpose of the course is to offer civil and environmental engineering students early exposure to several tools useful for other classes and in professional practice. The course is divided into three independent modules. In the economics module, the students learn about interest, net present worth, benefit-cost analysis, comparison of economic alternatives, and life-cycle costing.

ENE801: Dynamics of Environmental Systems *S15, S18*

Graduate requirement ENE - The objective of this course is to understand the principles of mass balance, reaction kinetics and reactor theory as applied to environmental science and engineering. The focus of this class is on surface water quality modeling. The approach is to understand the physical and chemical principles first and then translate that understanding into the language of mathematics and into working models.

Clemson University (EES: Environmental Engineering & Earth Sciences)

EES8200: Environmental Systems Engineering

F12, S14

Graduate elective - Decision making in environmental engineering can be a complex process due to conflicting objectives by various stakeholders, in particular as it relates to economic and social aspects. The course introduces students to fundamental optimization theories required to address complex multi-objective problems encountered in environmental sciences. Multi-criteria decision methods, which provide a mathematical methodology to incorporate the values of various stakeholders and technical information to select the best solution for a particular problem, are discussed.

**EES4860, 6860: Pollution Prevention and Industrial Ecology*

F13

Undergraduate requirement and graduate elective - Topics include pollution prevention technology, the role of pollution prevention within a corporation, source reduction and recycling, pollution prevention assessments, treatment to reduce disposal, life-cycle assessment, design for environment and industrial ecology.

**EES8830-4: Applied Life Cycle Assessment*

S13

Graduate elective - Life-cycle assessment (LCA) is a well-established methodology used to evaluate the environmental impact of a product throughout all the stages of its life, from cradle-to-grave. In addition to the most common process LCA methodology, other methods such as input-output, economic and social LCA are introduced.

EES4900-4: Using Serious GAMES in Environmental Decision Making

S13, F13

Undergraduate elective – Creative Inquiry: Team-based investigations are led by a faculty mentor and typically span two to four semesters. Students take ownership of their projects and take the risk necessary to solve problems and get answers.

ADVISING

Primary Advisor for Ph.D.:

Graduated:

Steele, Muriel (Ph.D. EE&S Clemson): "Quantifying Sustainability in Wastewater Treatment: Examples in Algaculture", co-advisor with David Ladner, Graduated June 2016

NSF Graduate Research Fellowship Winner

Serife, Elif Can-Sener (Ph.D. Policy Studies Clemson), "Understanding transition barriers to renewable energy", co-advisor with Julia Sharp, Graduated August 2017

Collins, Mary Kayla (Ph.D. EE&S Clemson): "Environmental impact predictions for disposal of emerging energy technologies in solid waste landfills: application to lithium ion batteries and photovoltaics modules", co-advisor with Brian Powell Graduated May 2018

Current:

Lee, Eunsang (Ph.D. ENE Michigan State University), "Green chemistry for organic photovoltaics", expected graduation December 2018

Kamath, Dipti (Ph.D. ENE and Environmental Science and Policy Program (ESPP) Michigan State University), "Potential for second life battery in solar applications" expected graduation August 2019

MSU Environmental Science & Policy (ESPP) Doctoral Fellowship Winner

Shukla, Siddharth (Ph.D. ENE Michigan State University), expected graduation May 2021

Heidari, Seyed Mohammadreza (Ph.D. ENE Michigan State University), "Environmental impact of nanomaterials synthesis" expected graduation May 2021,

Farina, Angela (Ph.D. CE Michigan State University), "Life cycle assessment of pavement alternatives", co-advisor with Emin Kutay expected graduation May 2021

Primary Adviser for MS:

Tisza, Kata (MS EE&S Clemson): "GIS-Based suitability modeling and multi-criteria decision analysis for utility scale solar plants in four states in the southeast United States" May 2014
Currently: Technical Manager at International Solid Waste Association (ISWA)
Fulbright Hungary Winner
Ge, Yuwei, coursework option, December 2017

Primary advisor for undergraduate research assistants

Jack Stephan, Engineering Undergraduate Research Experience (EnSURE) (2015)
Fulbright Winner (India-2016)
Stephen Christy, Professional Assistantship (2015-2017)
Cameron J Andrews, Professional Assistantship (2015-2017)
Anjali Munasinghe, Professional Assistantship (2016-2017)
Kelsey Gross, EnSURE (2016- 2017)
Urusha Regmi, Internship in Global Engineering & Advanced Research (InGEAR) – Nepal (2016)
Jordan Stomps, S3 project (2016- 2017)
Taylor Stephen, EnSURE 2017
Siqi Xue, EnSURE 2017
Lucas Michael Hardy, Professional Assistantship (2017- current)
Rohan Challa, Professional Assistantship (2018- current)

Primary advisor for high school student

Mingxuan Sun, Potential for solar and wind energy in Michigan 2017
Jinwook Lee, Economic and Environmental Assessment of Photovoltaics for Low-Income Households 2018

Dissertation and thesis committee:

Clemson:
Gubbala Satya (MS EE&S) Fall 2012, Aniruddha Sawant (MS EE&S) Spring 2014
MSU:
Charifa Hejase, MS Environmental Engineering, August 2016
Chris Traverse, Ph.D. Materials Science and Engineering December 2017
Xiaoyu Wang, Ph.D. Environmental Engineering, June 2018
Obafemi Elegbede, Ph.D. Community Sustainability expected December 2018
Charifa Hejase, Ph.D. Environmental Engineering & ESPP, expected 2020
Gabriela Shirkey, Ph.D. Geography & ESPP, expected 2021

PUBLICATIONS

Refereed Journal Publications (Primary Student Advisees)

Manuscripts in preparation

Lee E, Stephan J Traverse C, Lunt RR, **Anctil A**, "Net environmental benefit of transparent organic photovoltaic in window applications"

Kamath D, Arsenault R, Kim HC, **Anctil A**, " Second life potential and environmental benefits of EV batteries as fast charging enablers"

Shuklas S, Kamath D, Arsenault R, Kim HC, **Anctil A**, "Second life battery storage for microgrid applications"

Published

Wang X, **Anctil A**, Masten JM. "Energy consumption and environmental impact of ozonation catalytic membrane filtration system and comparison with hollow fiber membrane for water treatment". Accepted Environmental Engineering Science (2018)

- Lee E, Andrews JC, Anctil A. "An iterative approach for fine chemicals manufacturing: an example from chloroaluminum phthalocyanine for photovoltaic applications". ACS Sustainable Chemistry & Engineering, 6(7): 8230-8237 (2018)
- Kamath D and Anctil A., "Powering India's villages sustainably: A case study of Bihar". Proceedings of The International Conference in Emerging Trends In Engineering, Science and Technology (ICETEST 2018), January 18–20, Thrissur, Kerala, India, pp.213-222.(2018)
- Şener ŞE, Sharp JL, Anctil A. "Factors impacting diverging paths of renewable energy: A review". Renewable and Sustainable Energy Reviews.81 (P2) 2335-2342 (2018)
- Traverse CJ, Young M, Suddard-Bangsund J, Patrick T, Bates M, Chen P, Wingate B, Lunt SY, **Anctil A**, and Lunt RR. "Anions for Near-Infrared Selective Organic Salt Photovoltaics." Scientific reports 7, no. 1 (2017): 16399.
- Lee YB, Lee WH, Worman JJ, **Anctil A**, Landi B, Bae C. Synthesis and property of polyimines containing 2, 2, 4, 4-tetramethyl-1, 3-cyclobutadiimine moiety. Macromolecular Research.;25(6):578-83 (2017)
- Collins MK, Anctil A. "Implications for current regulatory waste toxicity characterisation methods from analysing metal and metalloid leaching from photovoltaic modules". International Journal of Sustainable Energy, 36(6), 531-544 (2017)
- Anctil A**, Le Blanc D, "An Educational Simulation Tool for Integrated Coastal Tourism Development in Developing Countries", Journal of Sustainable Tourism 24 (5), 783-798 (2016)
- Yilmaz O, **Anctil A**, Karanfil T, "LCA as a Decision Support Tool for Evaluation of Best Available Techniques (BATs) for Cleaner Production", Journal of Cleaner Production, 105, 337-347 (2015)
- Steele M, Anctil A, Ladner D. "Integrating algaculture into small wastewater treatment plants: Process flow options and life cycle impacts", Environmental Science: Processes & Impacts 16 (6), 1387-1399 (2014)
- Ganter M, Landi B, Babbitt C, **Anctil A**, Gaustad G, "Refunctionalization as a Lithium Ion Battery Recycling Alternative", Journal of Power Sources,256, 274-280 (2014)
- Anctil A**, Fthenakis V, "Critical metals in strategic photovoltaic technologies: abundance versus recyclability", Progress in Photovoltaics: Research and Applications, 21 (6), 1253–1259 (2013).
- Fthenakis V, **Anctil A**, "Direct Te mining Resource availability and impact on cumulative energy demand of CdTe PV life-cycles", IEEE Journal of Photovoltaics, 3 (1) 433 - 438 (2013).
- Anctil A**, Babbitt CW, Landi BJ, Raffaele RP, "Cumulative Energy Demand for Small Molecule and Polymer Photovoltaics", Progress in Photovoltaics: Research and Applications, 21 (7) 1541-1554 (2013).
- Anctil A**, Babbitt CW, Landi BJ, Raffaele RP, "Material and Energy Intensity of Fullerene Production", Environmental Science & Technology. 45 (6), 2353-2359 (2011).

Book chapter

- Anctil A**, Fthenakis V, "Life-cycle Assessment of Organic Photovoltaics", in Third generation Photovoltaics, V Fthenakis, Editor (2011)

Report

- Moore S, **Anctil A**, "Michigan's energy future: expert and public opinion on energy transition in Michigan", Michigan Applied Public Policy Briefs, Institute for Public Policy and Social research Michigan, In Press (2018)
- The Solar Foundation, "Michigan Solar Jobs Census 2015", available at www.TSFCensus.org and SolarStates.org (2016)

Conference Proceedings (* Indicates presenter)

- Anctil A**, Lee E, Stephan J, Munasinghe A, Traverse C, Lunt RR, " Life cycle assessment of transparent organic photovoltaic for window applications", 44th IEEE Photovoltaics Specialists Conference, Washington, DC,

June 2017

Lee E, Traverse CJ, Young M, Lunt RR, **Anctil A***, "Evaluation of CIAIPc synthesis methods for transparent organic photovoltaic," 43rd IEEE Photovoltaics Specialists Conference, Portland, OR, June 2016

Collins MK*, Powell B, **Anctil A**, "Life cycle assessment of silicon solar panels manufacturing in the United States", 42nd IEEE Photovoltaic Specialists Conference, New Orleans, June 2015, 1-4

Tisza K, Brame S, **Anctil A***, "GIS based multi-criteria decision analysis for photovoltaic panel deployment in the Southeast United States" 40th IEEE Photovoltaic Specialists Conference, Denver, CO, June 2014. 1001 - 1004

Collins MK*, **Anctil A**, "Photovoltaic Waste Characterization with Environmental Considerations" 40th IEEE Photovoltaic Specialists Conference, Denver, CO, June 2014, 1419-1423

Steele M*, Ladner D, **Anctil A**, "Net Environmental Benefit Approach to Life Cycle Assessment for Algae Culture Integration at Wastewater Treatment Plants", ACLCA Conference, Tampa Florida October 2013

Anctil A, Fthenakis V*, "Recyclability Challenges in Abundant Material-Based Technologies", 27th EU Photovoltaic European Photovoltaic Solar Energy Conference, Frankfurt Germany, September 2012.

Anctil A*, Fthenakis V, "Greenhouse gases emissions and energy payback of large photovoltaic power plants in the northeast United States", 38th IEEE Photovoltaic Specialists Conference, Austin, TX, June 2012.

Anctil A*, Babbitt CW, Landi BJ, Raffaele RP, "Life-cycle Assessment of Organic Solar Cell Technologies", 35th IEEE Photovoltaic Specialists Conference, Honolulu, HI, June 20-25, 2010. (Best student presentation)

Anctil A*, Landi BJ, Raffaele RP, "Multi-junction Polymer Solar Cells", 34th IEEE Photovoltaic Specialists Conference, Philadelphia, PA, June 7-12 2009.

Raffaele RP*, **Anctil A**, Merrill A, Landi BJ, "Dye-Sensitized Bulk Heterojunction Polymer Solar Cell", 33rd IEEE Photovoltaic Specialists Conference, San Diego, CA, May 11-16 2008.

Anctil A*, Merrill A, Cress CD, Landi BJ, Raffaele RP, "Environmental Passivation and Temperature Cycling of PCBM - Polymer Solar Cells" Materials Research Society Fall Meeting, Boston, MA, November 26-30 2007, Paper H9.54

Other Recent Presentations

Shukla S, Kamath D, **Anctil A**, "Using second life Li-Ion electric vehicle battery to stabilize power output from residential photovoltaic systems", Engineering Graduate Research Symposium, Michigan State University, East Lansing, MI, March 2018

Lee E*, Traverse CJ.; Lunt RR, **Anctil A** "Environmental benefit of transparent organic photovoltaic in window application for urban area". Engineering Graduate Research Symposium, Michigan State University, East Lansing, MI, March 2018

Farina A*, **Anctil A**, Kutay E, "Polymer coated rubber (PCR) as a modifier to improve the mechanical performance of hot mix asphalt: laboratory evaluation and sustainability assessment. Engineering Graduate Research Symposium, Michigan State University, East Lansing, MI, March 2018 (Poster)

Heidari SM*, Lee E, **Anctil A**. "A sustainable approach for fullerene purification". Engineering Graduate Research Symposium, Michigan State University, East Lansing, MI, March 2018 (Poster)

Kamath D*, Shukla S, **Anctil A**, "Home charging Electric Vehicles with Second Life EV Batteries: Getting every Lithium-ion out!" Engineering Graduate Research Symposium, East Lansing, MI, March 2018.

Eunsang Lee*, Lunt RR, **Anctil A**. "Life cycle assessment and net environmental benefit of transparent organic photovoltaic in window and skylight application for sub-urban area", Environmental Science and Policy Research symposium, East Lansing, MI, October 2017

Stephen T*, Kamath D, **Anctil A**, "An Economic Analysis of Potential End-of-Life Pathways for Electric Vehicle Batteries," Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing, MI, July 2017. (Poster)

- Goss K*, Kamath D, **Anctil A**, "Electric Vehicle Fast Charging Station Daily Power Demand Profile," Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing, MI, July 2017. (Poster)
- Xue S*, Kamath D, **Anctil A**, "Environmental Impacts of On-Road Wireless Charging Versus Distributed Charging Stations," Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing, MI, July 2017. (Poster)
- Kamath D*, Arsenault R, Kim HC, **Anctil A**, "Second Life Potential and Environmental Benefits of EV batteries as Fast Charging Enablers," ISIE-ISSST 2017, Chicago, IL, June 2017.(Poster)
- Lee E*, Andrews C, **Anctil A**, "Methodology to evaluate the impact of fine chemicals manufacturing: an example from organic photovoltaic materials", ISIE-ISSST 2017, Chicago, IL, June 2017.
- Anctil A**, Stomps J, Claes J, Bieler T, Moore S, "A socio-technical analysis of energy transition to PV and nuclear: a case study on Michigan", AEESP conference, Ann Arbor, MI, June 2017
- Kamath D*, Goss K, Christy S, **Anctil A**, "Environmental benefits of second use of EV batteries for Fast Charging: A Life Cycle Assessment Approach," Engineering Graduate Research Symposium, East Lansing, MI, March 2017. (Poster)
- Lee E*, Andrews C, **Anctil A**, "Methodology to evaluate the impact of fine chemicals manufacturing: an example from organic photovoltaic materials", Engineering Graduate Research Symposium, East Lansing, MI, March 2017 (Poster)
- Goss KL, Regmi U, **Anctil A**, "Second-life battery applications for photovoltaic and electric vehicle charge," Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing MI, July 2016 (Poster)
- Regmi U, Goss, KL, **Anctil A**, "Second life use of battery in photovoltaic system for electric vehicle charging", Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing, MI, July 2016 (Poster)
- Lee E, Andrews JC, **Anctil A***, "Chloroaluminium phthalocyanine synthesis for transparent organic photovoltaics," 20th Annual Green Chemistry & Engineering Conference, Portland, OR, June 2016
- Collins K*, Bosley M, **Anctil A**, Kennedy M, Powell B, "Physical and chemical degradation of lithium ion batteries under landfill disposal conditions", International Symposium on Sustainable Systems and Technology (ISSST), Phoenix, AZ, May 2016
- Lee E*, Andrews JC, **Anctil A**, "Application of Green Chemistry Principles: waste reduction during chloroaluminum phthalocyanine synthesis process for organic photovoltaic" International Symposium on Sustainable Systems and Technology (ISSST), Phoenix, AZ, May 2016 (Poster)
- Lee E*, Andrews JC, **Anctil A**, "Chloroaluminium phthalocyanine Synthesis for transparent organic photovoltaics: tracking carbon, water and energy footprints," Fate of the Earth Symposium 2016: Climate-Food-Energy-Water Nexus, East Lansing, MI, April 2016 (Poster)
- Lee E*, Andrews JC, **Anctil A**, "Microwave assisted synthesis: chloroaluminium phthalocyanine for transparent organic photovoltaics", 2016 Engineering Graduate Research Symposium, East Lansing, MI, March 2016 (Poster)
- Can Sener S*, "Role of Public Policy Instruments in Renewable Energy Development", 87th Annual Conference Southern Political Science Association, San Juan PR, January 7th 2016
- Steele M, Sims R, Ladner D, **Anctil A**, "Towards sustainability in wastewater treatment: Comparing life cycle impacts of algaculture and conventional systems", ISSST conference, Dearborne MI, May 18 2015 (*Best Poster winner*)
- Collins MK*, **Anctil A**, Kennedy M, Powell B, Physical and Chemical Decomposition of Lithium Ion Batteries and Photovoltaic Modules in Solid Waste Landfills, ISSST conference, Dearborne MI, May 19 2015
- Steele M, **Anctil A**, Sims R, Ladner D. Sustainable wastewater treatment in small communities: Comparing life cycle impacts of algaculture and conventional systems. South Carolina Environmental Conference,

Myrtle Beach, SC. March 2015.

Steele M, Sims R, Ladner D, **Anctil A**. Algaculture at wastewater treatment plants: feasibility and life cycle impacts. Algal Biomass, Biofuels, and Bioproducts, Santa Fe, NM. June 2014.

Tisza K*, Brame S, **Anctil A**. "GIS Based Environmental Impact Assessment of Photovoltaics in the Southeast Region" ISSST conference, Oakland CA, May 19 2014.

Tisza K, Brame S, **Anctil A***. "Environmental Impact of Photovoltaics in the Southeast Region" SETAC conference, Nashville, TN, November 2013

Collins MK*, **Anctil A**. "Characterization and sustainable management of photovoltaic waste", SETAC conference, Nashville, TN, November 2013 (Poster)

Steele MM*, Ladner DA, **Anctil A**. "Net Environmental Benefit Approach to Life Cycle Assessment for Algaculture Integration at Wastewater Treatment Plants", ACLCA Conference, Orlando FL, October 2013

Yilmaz O*, **Anctil A**, Karanfil T. "LCA as a Decision Support Tool for Evaluation of Best Available Techniques (BATs) for Cleaner Production", ACLCA Conference, Orlando FL, October 2013

Collins MK*, **Anctil A**. "Environmental impacts of photovoltaic solar panels at end-of-life", Fall ACS meeting, Indianapolis, IN, September 8-12, 2013

Steele MM*, Ladner DA, **Anctil A**. "Net environmental benefit LCA: Integrating algae at WWTPs." Algal Biomass Biofuels and Bioproducts conference, Toronto, ON, Canada, June 2013. (Poster)

Steele MM*, **Anctil A**, Ladner DA. "Net Environmental Benefit Approach to Life Cycle Assessment for Algal Integration at Wastewater Treatment Plants." South Carolina Environmental Conference, Myrtle Beach, SC, March 2013 (Poster).

Anctil A*, Babbitt CW, Landi BJ, Raffaele RP, "Nanomaterials in Organic Solar Cells", Sustainable Nanotechnology Organization Conference, Washington, DC, November 4-6 2012.

Anctil A, Babbitt CW, Landi BJ, Raffaele RP, "Life-cycle Assessment of Fullerenes Production", ACS Summer School on Green Chemistry and Sustainable Energy, Golden, CO, July 21-29, 2010 (Poster)

Anctil A, Merrill A, Weaver A, Rugg K, Kolev J, Landi BJ, Raffaele RP, "Inkjet Fabrication of Tandem Dye-Sensitized Bulk Heterojunction Polymer Solar Cells", Materials Research Society Fall Meeting, Boston, MA, December 2 - 5 2008 (Poster)

Anctil A, Landi BJ, Worman J, Raffaele RP, "Colloidal InAs Quantum Dots for Polymer Photovoltaics", Materials Research Society Spring Meeting, San Francisco, CA, April 10-13, 2007 (Poster)

Anctil A, Schauerman C, Landi BJ, Raffaele RP, "Carbon Nanotubes for Polymer Photovoltaics", American Physics Society (APS), Denver, CO, March 5-9, 2007 (Poster)

INVITED PRESENTATIONS

"Design for the environment in energy applications", Rochester Institute of Technology, March 2017

"Introduction to sustainable energy" Greener together, Michigan State University, November 2016

"Design for the environment: application to photovoltaic and wastewater treatment", presentation at the UM's Sustainable Systems Forum, University of Michigan, November 2016

"Design for the environment in solar energy", presentation to the MSU Physics society, November 2016

"Reducing the environmental impact of solar technologies", presentation at the University of Wisconsin-Madison, October 2016

"Reducing the environmental impact of emerging PV technologies", presentation at the International Symposium on Sustainable Systems and Technology (ISSST) panel on Photovoltaics and the Environment, May 2016

"Introduction to sustainability and life cycle assessment", guest lecture at Michigan State University for the Environmental Science & Policy Program, Fall 2014

"Sustainability." Keynote Speaker for the EcoRep conference." at the University of South Carolina, March 2014

"Life-Cycle Assessment of Nanomaterials and fine chemicals for Power application", guest lecture for Case Western PIRE: Sustainability Life Cycle Analysis Course, June 2013

"Introduction to Life Cycle Assessment", Invited guest lecture at Clemson University for the Sustainability Leadership undergraduate course, Fall 2012 and Spring 2014

"Introduction to Photovoltaics", guest lecture at Clemson University for the Renewable Energy Undergraduate course, Fall 2012

"From national lab to academia." Invited presentation, Brookhaven National Laboratory, DOE Office of Science Graduate Fellowship annual meeting August 2012

"Nanotechnology and Sustainability", Invited presentation at RIT for Earth Day, Spring 2010

PROFESSIONAL ACTIVITIES

Service to the field

- Editorial Advisory Board, Materials Science in Semiconductor Processing, 2011-
- Voting member for NSF International standard #457: Sustainability Leadership for Photovoltaic Module, 2015- present
 - Member of the Substances of Concern & Materials Task Group
 - Member of the LCA, Energy & Water Task Group
- Reviewer of methods, results and solar overview for the "Michigan Solar Jobs Census" published by *The Solar Foundation*, 2015-2016
- Reviewer for papers submitted for publication to *Environmental Science and Technology*, *Materials Science in Semiconductor Processing*, *Applied Energy*, *IEEE-Journal of Photovoltaics*, *Progress in Photovoltaics: Research and Applications*, *International Journal of Sustainable Energy*, *RSC Advances*, *Journal of Industrial Ecology*, *Journal of Cleaner Production*, *Renewable & Sustainable Energy Reviews*, *Solar Energy Materials & Solar Cells* and others.
- Reviewer for project proposals for
 - National Science Foundation (NSF) (2012-2016)
 - Environmental Protection Agency (EPA) panel (2013)
 - Department of energy (DOE) (2013)
 - Fonds de recherche Nature et Technologies (FQRNT), Canada (2016-2017)
- Member of conference organizing committees
 - 39, 40, 42, 43 and 44 IEEE- Photovoltaic Specialists Conference (2012-2017) Awards chair (2013), Graduate Student Assistant Chair (2014), Sub-area chair (2014, 2017), Poster chair (2017)
 - Program Area Chair for the 42nd and 43 IEEE-PVSC Conference: PV deployment and Sustainability (2015-2016)
 - ISSST conference Proceeding co-editor (2015-2016)
- Reviewer ACLCA (2012-2013) and IEEE-PVSC (2013-2017) conference papers
- Judge for poster competition at the IEEE-PVSC (2012/2014) and ISSST (2012/2014-2017) conferences

Service to the University

MSU

- Department UGCC committee (2017- current)
- Environmental Science and Policy Program (ESPP) Faculty Advisory Council (2016-2017)
- Advisory board for S3 (Science and Society @ State) (2016-2017)
- Department Seminar Coordinator (2016-current)
- College Research Strategic Planning Committee, lead on *Recruitment and retention* sub-group, 2016
- Department representative, College of Engineering Energy Minor, (2015- current)
- College of Engineering representative on search committee for
 - James Madison College position in Energy Policy, 2014
 - Materials science position in Organic Electronic Materials, 2017-2018

- Poster judge Graduate symposium (2016-2018)

Clemson

- University representative from the college of Engineering and Sciences on the President's Commission on Sustainability, 2012-2014
- Department representative, College of Engineering and Science International Committee, 2013-2014

Outreach and Community Engagement

• **K-12 Outreach:**

- Developed and supervised hands-on engineering experience for the MSU High School Engineering Institute Summer Camp on "Solar and the environment" (2016-2018)

• **Women in Engineering**

- Participation in various events organized by MSU Women in Engineering including student recruitment events (2015-2018), developing hands-on engineering experiences for *Introduce a girl to Engineering* (2016-18) and for the *Women in Engineering Summer Camp* on "Solar and sustainability" (2016- 18)
- Co-organizer of the annual luncheon Women in Photovoltaics event at the IEEE-PVSC conference (2014-2016) and main organizer for the 2017 edition

Memberships

Materials Research Society-MRS (2006-), Institute of Electrical and Electronics Engineers-IEEE (2009-), IEEE Women in Engineering (2012-), American Solar Energy Society (2013-), South Carolina Solar Council (2013-2014), American Center for Life Cycle Assessment- ACLCA (2011-2016), Society for Environmental Toxicology and Chemistry, SETAC (2013-2015), Women in Solar Energy-WISE (2014-2017), Association of Environmental Engineering and Science Professors- AEESP (2014-), American Chemical Society- ACS (2016-), Advancing Women in Energy (2016-)