

SHWETA SINGH

Assistant Professor

Department of Agricultural & Biological Engineering

Division of Environmental & Ecological Engineering

Purdue University

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Professional Experience

- Nov 2014 - Present Assistant Professor, Agricultural & Biological Engineering and Division of Environmental & Ecological Engineering, Purdue University, West Lafayette, Indiana, U.S.A.
- Oct 2013-Oct 2014 Postdoctoral Fellow, Department of Civil Engineering, University of Toronto, Toronto, Ontario, Canada
Mentor: Prof Chris Kennedy
Research Area: Urban Sustainability: Energy Consumption and C-N-Biodiversity Impacts
- Sep 2012-Sep 2013 National Research Council Postdoctoral Fellow, National Academy of Sciences & U.S. Environmental Protection Agency, Western Ecology Division, Corvallis, Oregon
Mentor: Dr. Jana Compton
Research Area: Development of Nitrogen Physical Input-Output Table
- July 2006- Aug 2007 Associate Software Developer, Sapient Corporations, Bangalore, India

Education

- PhD. Sep 2007 - Aug 2012 Chemical Engineering The Ohio State University, Department of Chemical Engineering
Advisor: Bhavik R. Bakshi
Phd Thesis: *Incorporating Biogeochemical Cycles and Utilizing Complexity Theory for Improving Sustainability Analysis Methodology*
- Masters in Applied Statistics, 2011 Statistics The Ohio State University, Department of Statistics
- B.Tech, 2006 Chemical Engineering Indian Institute of Technology- Banaras Hindu University (IIT-BHU) – Varanasi, India

Other Professional Preparation

- Complex Systems Summer School, June 8 – July 1, 2011 Complexity Science Santa Fe Institute, Santa Fe, New Mexico, USA
- 6th Annual Green Chemistry Summer School, July 2008 Green Chemistry and Sustainability American Chemical Society, Golden, Colorado, USA

Awards & Honors

- 1 **Finalist - Johnson & Johnson Women in Science, Technology, Engineering, Manufacturing, Math and Design (WiSTEM2D) Scholar Award, 2017** - Among top 40 from about 500 applicants worldwide.
- 2 **Best Student Paper**, 2014, American Institute of Chemical Engineers (AIChE), Sustainable Engineering Forum
- 3 **National Research Council Award under the Research Associateship Program of National Academy of Sciences** to conduct independent research at US-EPA. April 2012.
- 4 **Outstanding Graduate Award** for Academic Achievement, Spring 2011, Department of Chemical and Bio-molecular Engineering, The Ohio State University. May 2011
- 5 **Awarded a Scholarship by Santa Fe Institute**, New Mexico, to attend a summer school on Complex Systems, 8 June – 1 July 2011 organized by Santa Fe Institute
- 6 **Best Student Paper at 2010**, IEEE International Symposium on Sustainable Systems and Technology for the paper: *Enhancing the reliability of C and N accounting in economic activities: Integration of bio-geochemical cycle with Eco-LCA*
- 7 **Best Student Poster at 2010**, IEEE International Symposium on Sustainable Systems and Technology.
- 8 **Nanoscale Science and Engineering Center (NSEC) Fellow** at The Ohio State University, 2009-2010.

Editorial Positions

1. Managing Guest Editor for Special Issue on “Advances in Circular Economy” in Resources, Conservation and Recycling, Elsevier
2. Guest Editor for Special Issue on Eco-Summit 2016 in Ecological Modeling, Elsevier

Professional Society Activities

- 1 **Program Chair**, International Symposium on Sustainable Systems & Technology (ISSST 2018) – Leading Section on Advances in Circular Economy.
- 2 International Society of Industrial Ecology (ISIE), Biennial Meeting, 2017 and ISSST 2017, Scientific Review Committee and Organizing Committee.
- 3 ISSST 2014, Member of Scientific Committee
- 4 International Conference on Sustainable Design, Engineering & Construction (ICSDEC 2015), Leadership Committee
- 5 ISSST 2016, Publicity Chair
- 6 **Session Organizer** : “Nitrogen and Sustainability” : In EcoSummit (Session #0234), France, Aug, 2016 (<http://www.ecosummit2016.org/sessions-general-ecology.asp>)
- 7 AIChE Area 23 C (Sustainable Engineering) Session Chair, 2017, 2018
- 8 Session Co-Chair, “Thermodynamics in Sustainability and Industrial Ecology”, ISIE-2017

FUNDING

Grants and Contracts

- 1 US National Science Foundation (NSF), CBET, Environmental Sustainability: 2018-2021 (PI, \$292,398)
- 2 US National Science Foundation (NSF), 2020-2021 (PI, \$34,447)
- 3 US, National Science Foundation (NSF), DEB, 2021-2024 (Co-I, \$89,997)
- 4 US Army Research Lab, 2020-2023 (Co-I, \$165,000)
- 5 Purdue Research Foundation Grant : June 2020 (PI: \$50,000)
- 6 Purdue Research Foundation Grant: 2017 (PI: \$8,000)
- 7 International Renewable Energy Agency (Headquarters: Bonn, Germany): 2016 (PI: \$10,000)
- 8 National Academy of Sciences, National Research Council Postdoctoral Fellowship: 2012-2014 (\$120,000) (Second year fellowship was declined to pursue postdoctoral work with Prof Chris Kennedy at University of Toronto)
- 9 Purdue Research Foundation, International Travel Grant: (\$1,000) 2016, For Organizing a Session on “Nitrogen and Sustainability” at EcoSummit, 2016; Montpellier, France

Student Fellowships and Awards

- 1 Best Oral Presentation to Gargeya Vunnava, ISIE Americas 2020 Conference
- 2 Miriam Stevens selected as Emerging Leaders in Circular Economy for a mentorship program with BASF, Green Biz conference 2020
- 3 Purdue Ross Fellowship to Miriam Stevens : \$50,000 (2019-2020)
- 4 2nd Prize on Poster to Gargeya Vunnava “An Automated Approach to build Industrial Ecosystem Networks using Physical Input Output Tables generated from Computational Process Models”: NSF Workshop at Purdue, Center for Resilient Infrastructures, Systems and Processes.
- 5 Purdue Climate Change Research Center (PCCRC): Travel Grant to Gargeya Vunnava, PhD Student ISIE, \$1,000
- 6 Purdue Ross Fellowship to Liz Wachs: \$50,000 (2015-2016)
- 7 Purdue Climate Change Research Center (PCCRC): Travel Grant to Nehika Mathur, PhD Student ISSST, \$1,000
- 8 Potash Corp i2i Fellowship to student Jacob Wheatley for 2 semesters research on “Sustainability of Phosphorus Recovery”, Fall 2015-Spring 2016
- 9 Walter J Hass Solar Scholarship to Heather Strathearn for work on Life Cycle Assessment of Solar Energy in Urban Systems (\$18,000) (Fall 2017 – Spring 2018)

PUBLICATIONS (Journal & Conference Proceedings Peer Reviewed)

***Represent articles from work at Purdue.**

****Articles written at Purdue, some work was done at Postdoc positions**

Journal Articles in Preparation

- 1 *Vunnava, V.S.G and Singh, S., Mechanistic Approaches to Generation of PSUT and PIOT. In preparation
- 2 *Stevens, M., Geschke, A., Lenzen M., and Singh S., A MRIO approach to Cobalt tracking in US – In preparation

Articles Under Review/Revision

- 1 *Vunnava, V.S.G, Shin, J., Zhao, L. and **Singh, S.**, Automating the development of Physical Input-Output Tables via Engineering Models Simulation and Physical Supply-Use Tables : An Integrative Simulator and Collaborative Cloud Infrastructure (PIOT-Hub) – Revising
- 2 *Mathur, N., Sutherland, J. W. and **Singh S.**, A hybrid multiobjective optimization approach for early planning of Eco-Industrial Parks centered around end of life photovoltaic (PV) waste. – Revising

Journal Articles

- 1 ***Singh, S.**, Babbitt C., Gaustad, G., Eckelman, M.J., Gregory, J., Ryen E., Mathur N^G., Stevens M.C^G., Parvatkar A., Buch R., Marseille A., Seager T., “Thematic exploration of sectoral and cross-cutting challenges to circular economy implementation.”, Accepted, **Clean Technologies and Environmental Policy**, (2020)
- 2 *Vunnava, V.S.G and **Singh S.**, “Spatial Life Cycle Analysis of soybean-based biodiesel production in Indiana, USA using process modeling” (Invited Paper in Special Issue), **Processes** 8 (4) (2020)
- 3 *^{UG}Subramanian, R., ^{UG}Moar, R. and **Singh S.**, “White-Box Machine Learning Approaches to Identify Governing Equations for Overall Dynamics of Manufacturing Systems: A Case Study on Distillation Column”, Accepted, **Machine Learning With Applications** (2020)
- 4 *Faturay, F., ^GVunnava V.S.G., Lenzen, M., **Singh S.**, “Using a new USA multi-region input output (MRIO) model for assessing economic and energy impacts of Wind Energy expansion in USA.” **Applied Energy**, 261, 114141 (2020)
- 5 *^GMathur, N., **Singh S.**, Sutherland J., “Promoting a Circular Economy in the Solar Photovoltaic Industry using Industrial Symbiosis.” **Resources Conservation and Recycling**, 11, 104649 (2020)
- 6 *^GWachs, E. and **Singh S.**, Projecting Urban Energy Demand for Indiana, USA in 2050 and 2080. **Climatic Change**, 1-18 (2020)
- 7 *^GVunnava, G. and **Singh S.**, “Entropy Generation Analysis of Sequential Anaerobic Digester Ion-Exchange Technology for Phosphorus extraction from Waste”, **Journal of Cleaner Production** 221, 55-62 (2019)
- 8 ***Singh S.**, Ashton, W., Buch R., Babbitt, C. and Seager, T. “Advances in the Circular Economy”, **Resources Conservation and Recycling**, 141, 499-500 (2019)
- 9 *^GWachs, L. and **Singh S.**, A modular bottom-up approach for constructing physical input-output tables (PIOTs) based on process engineering models, **Journal of Economic Structures**, 7:26 (2018)
- 10 *Raymond L., Gotham D., McClain W., Mukherjee S., Nateghi R., Preckel, P.V., Schubert P., **Singh S.**, and ^GWachs E. Projected Climate Change Impacts on Indiana’s Energy Demand and Supply, **Climatic Change**, (2018)
- 11 *Liu Y., Engel B.A., Flanagan D.C., Gitau M. W., McMillan, S. K., Chaubey I., **Singh S.**, Modeling framework for representing long-term effectiveness of best management practices in addressing hydrology and water quality problems: Framework development and demonstration using a Bayesian method., **Journal of Hydrology**, Vol. 560, Pages 530-545, (2018)
- 12 **Liu, X., **Singh S.**, Gibbemeyer, E.L., Tam, B., Urban, R.A., Bakshi, B. R., *The Carbon-Nitrogen Nexus of Transportation Fuels.* **Journal of Cleaner Production**, (2018)
- 13 ****Singh S.**, Compton J.E., Hawkins, Troy R., Sobota, D. J., Cooter, E.J. *A Nitrogen Physical Input-Output Table (PIOT) model for Illinois.* **Ecological Modelling**, 360 (2017) 194-203

- 14 ****Singh S.** and C. Kennedy, The Nexus of Carbon, Nitrogen and Biodiversity Impacts from Urban Metabolism. **Journal of Industrial Ecology** (2017) doi:10.1111/jiec.12611
- 15 Sobota D, Compton J, McCrackin M., **Singh S.**, Cost of reactive nitrogen release from human activities to the environment in the United States., **Environ Research Letters**, 10 (2), 025006, 2015
- 16 **Singh S.** and Bakshi B.R., Footprints of Carbon and Nitrogen: Revisiting the Paradigm and Exploring their Nexus for Decision Making., **Ecological Indicators**. 53, June 2015, 49-60
- 17 **Singh S.** and C. Kennedy., Estimating Future Energy Use and CO₂ Emissions of the World's Cities., **Environmental Pollution**, Vol 203, August 2015, Pages 271-278
- 18 **Singh S.** and Bakshi B.R. Accounting for Emissions and Sinks from the Biogeochemical Cycle of Carbon in the US Economic Input-Output Model. **Journal of Industrial Ecology**, 18 (6), 818-828, 2014
- 19 **Singh S.** and Bakshi B.R. Accounting for the Biogeochemical Cycle of Nitrogen in Input-Output Life Cycle Assessment. **Environmental Science & Technology**, 47 (16), pp 9388-9396, 2013 (DOI: 10.1021/es4009757)
- 20 Zhang Y, **Singh S.** and Bakshi B.R. Accounting for Ecosystem Services in Life Cycle Assessment Part I: A Critical Review, **Environmental Science and Technology**, 44, 7, 2232-2242, 2010

Peer Reviewed Conference Proceedings

- 1 *Mathur, N., Sidi D., **Singh, S.**, Yih, Y., Sutherland, J. "Assessing the Opportunities and Benefits of a Circular Economy in the Context of Electric Vehicles", 26th CIRP Life Cycle Engineering Conference. (Conference Proceeding)
- 2 **Singh S.** and Bakshi B.R. *Insights into Sustainability from complexity analysis of Life Cycle Networks: A case study on Gasoline and Bio-Fuel Networks*. Proceedings of the 2011, IEEE International Symposium on Sustainable Systems and Technology (ISSST)
- 3 **Singh S.** and Bakshi B.R. *Enhancing the reliability of C and N accounting in economic activities: Integration of bio-geochemical cycle with Eco-LCA*. Proceedings of the 2010, IEEE International Symposium on Sustainable Systems and Technology (ISSST)
- 4 Urban R., **Singh S.**, Grubb G. and Bakshi B.R. *Establishing Synergies Between Technological and Ecological Systems for Sustainable Products and Process*. Sustainable Chemical Product and Process Engineering (SCPPE) Conference, Hangzhou, China, May 9-13, 2010
- 5 **Singh S.** and Bakshi B.R. *Eco-LCA: A tool for quantifying the role of ecological resources in LCA*. Proceedings of the 2009 IEEE International Symposium on Sustainable Systems and Technology (ISSST)

Book Chapters

- 1 **Singh S.** and Bakshi B. R. "N Footprint and the nexus between C and N footprints" in "Assessing and Measuring Environmental Impact in Engineering", Elsevier, Editor – Jiri Klemes, ISBN: 9780127999685
- 2 **Singh S.** and Bakshi B.R. "Chemical Engineering and Biogeochemical Cycles: A Techno-Ecological Approach to Industry Sustainability", in "Sustainability in the Analysis, Synthesis and Design of Chemical Engineering Processes, Elsevier, Editors: Heriberto Cabezas (US-EPA) and Gerardo Ruiz-Mercado (US-EPA)

CONFERENCE TALKS/POSTERS

- 1 Vunnavu, V.S.G. and **Singh S.**, “Spatial Life Cycle Analysis of Soybean-Based Biodiesel Production in Indiana Using Process Modeling”, AIChE Annual Meeting, Nov 18, 2020 (Online)
- 2 Faturay, F., Vunnavu, V.S.G., Lenzen, M., and **Singh S.**, “Economic and Energy Impacts of Wind Energy Expansion in the US Using Multi-Regional Input-Output (MRIO) tables”, AIChE Annual Meeting, Nov 16, 2020 (Online)
- 3 Vunnavu, V.S.G., and **Singh S.**, “Identifying Strategies for Systems Scale Transition to Circular Economy via Physical Supply Use Tables Developed from Bottom-Up Models : A Case Study on Illinois Agro-Economy”, AIChE Annual Meeting, Nov 17, 2020 (Online)
- 4 Vunnavu, G. and **Singh S.**, “Computational approach to generate Physical Input-Output Tables”, ISIE, July 2019, Beijing, China
- 5 Mathur N., Sutherland J.W. and **Singh S.**, “Identifying lucrative Life Cycle Symbiosis (LCS) Opportunities to Promote End of Life Solar Photovoltaic Recovery, ISIE, July 9, 2019, Beijing, China
- 6 Mathur N, **Singh S** and Sutherland J.W., “”, International Symposium of Sustainable Systems and Technology (ISSST), 2018, June 28-30, 2018, Buffalo, New York
- 7 Wachs, E. and **Singh S.**, “A Physical Input-Output Model for the Food-Energy-Water (FEW) Nexus in Indiana”, AIChE Annual Meeting, Oct 29-Nov 3, 2017, Minneapolis, MN
- 8 Gargeya, Vunnavu and **Singh S.**, “Thermodynamic Analysis of an Ion-Exchange Based Waste Water treatment for Phosphorus Recovery”, AIChE Annual Meeting, Oct 29- Nov 3, 2017, Minneapolis, MN
- 9 Wachs, E. and **Singh S.**, “Changing Global Demand for Fossil Based Electricity with Adoption of Renewables at Urban Scale”, AIChE Annual Meeting, Oct 29-Nov 3, 2017, Minneapolis, MN
- 10 **Singh S.**, and Bristow D., “Thermodynamics in Industrial Ecology and Sustainability”, Special Session, ISIE-ISSST 2017: Science in Support of Sustainable and Resilient Communities, ISIE-ISSST 2017, June 25th – 29th, Chicago, USA (Chair and Talk)
- 11 V.V.S. Gargeya and **Singh S.**, “Thermodynamic Assessment of Ion Exchange Technology for Phosphorus (P) Recovery from Waste: Entropy Generation (S_{gen}) as Sustainability Indicator”, ISIE-ISSST 2017: Science in Support of Sustainable and Resilient Communities, ISIE-ISSST 2017, June 25th – 29th, Chicago, USA (Talk)
- 12 Wachs E. and **Singh S.**, “Process Modeling Based Physical Input-Output Table (PIOT) for Nitrogen Flows Using ASPEN Plus: A Comparison with Empirical PIOT for Illinois”, ISIE-ISSST 2017: Science in Support of Sustainable and Resilient Communities, ISIE-ISSST 2017, June 25th – 29th, Chicago, USA (Talk)
- 13 Wachs E. and **Singh S.**, “Computational Approaches in Systems Modeling for Environmental Impacts of Industries: Automating Physical Input-Output Tables (PIOTs) via ASPEN Process Modeling”, AIChE, Nov 13-18, 2016, SF, USA (Talk)
- 14 **Singh S.**, “Systematic Approach Towards Establishing Thermodynamic Principles of Sustainable Coupled Industrial-Natural Systems”, AIChE, Nov 13-18, 2016, SF, USA (Talk)
- 15 **Singh S.**, Compton J., Hawkins T., Sobota D. and Cooter E., “A Physical Input-Output Model of N Flows in Illinois Economy”, Montpellier, France, Aug 29-Sep 2nd, 2016 (Talk)
- 16 **Singh S.** and C. Kennedy, “The role of Urbanization is Energy Sustainability Challenges”, ICOSSE, Balatonfured, ICOSSE, May 26-29, 2015., Balatonfured, Hungary (Talk)
- 17 Bampoh D. and **Singh S.**, Assessing the impact of contaminants of emerging concern on freshwater fish biodiversity. International Conference on Sustainable Design, Engineering and

- Construction, May 10th-May 13th, 2015, Chicago, IL, USA (Talk)
- 18 Bampoh D. and **Singh S.**, Fish biodiversity trends in response to pesticide toxicity in two North East US Rivers, The Association of Environmental Engineering & Science Professors (ASEEP), June 26 – Jun 23, 2015, New Haven, CT, USA (Poster)
- 19 Bampoh D. and **Singh S.**, Impact of Pesticides and nutrients on fish species biodiversity in agro-urban US. US-China Critical Zone Science, Sustainability and Services in a Changing World, 2015, Purdue University, USA (Poster)
- 20 C. Kennedy and **S. Singh**, *Estimating the Energy Use and CO2 Emissions of the World's Cities, Urban Environmental Pollution*, 12th June-15th June 2014, Toronto, ON, Canada (Keynote talk)
- 21 **Singh S.** and C. Kennedy, *Identifying the scale and nexus of Carbon, Nitrogen and Biodiversity Impacts of Urban Systems*, Gordon Research Conference on Industrial Ecology, 2nd June-6th June 2014, Lucca, Barga, Italy. (Poster)
- 22 **Singh S.** and C. Kennedy, *Identifying the scale and nexus of Carbon, Nitrogen and Biodiversity Impacts of Urban Systems*, ISSST 2014, May 2014, Oakland, CA, USA (Talk)
- 23 **Singh S.**, J. Compton, T. Hawkins, D. Sobota. *Utilizing a Physical Input-Output Model to Inform Nitrogen related Ecosystem services*. ISSST 2013, May 2013, Cincinnati, OH (Talk)
- 24 A. Fajardo, Z.A. Hamstead, N. Kunz, M. Sachs, **Singh S.** *Using insights from statistical physics to model common pool resource management*, EcoSummit 2012 – Ecological Sustainability – Restoring the Planet's Ecosystem Services. (Talk – Independent Research Collaboration at Santa Fe Institute Summer School)
- 25 **Singh S.** and Bakshi B.R. *Towards Improved C and N Footprints and Understanding Their Nexus*. AICHE Annual Meeting, November 2011, Minneapolis, Minnesota. (Talk)
- 26 **Singh S.** and Bakshi B.R. *Understanding the Evolution of By-Product Synergy Networks by Network Analysis*. AICHE Annual Meeting, 2011, Minneapolis, Minnesota. (Talk)
- 27 Bakshi B.R. and **Singh S.** *In Saving the Carbon Cycle Are We Ruining the Nitrogen Cycle? Understanding the Carbon-Nitrogen Nexus via Ecologically-Based Life Cycle Assessment*, International Congress on Sustainability Science and Engineering, January 9-12, 2011, Tucson, Arizona (Talk)
- 28 **Singh S.** and Bakshi B.R. *Understanding the C-N-Water-Energy Nexus in US Economy via Eco-LCA*. AICHE Annual Meeting, November 7-12, 2010, Salt Lake City, Utah (Talk)
- 29 **Singh S.** and Bakshi B.R. *Complexity Analysis of Gasoline and Corn-Ethanol Networks*. AICHE Annual Meeting, November 7-12, 2010, Salt Lake City, Utah (Talk)
- 30 **Singh S.** and Bakshi B.R. *Enhancing the reliability of C and N accounting in economic activities: Integration of bio-geochemical cycle with Eco-LCA*, IEEE International Symposium on Sustainable Systems and Technology, May 17-19, 2010 (Talk and Poster)
- 31 **Singh S.** and Bakshi B.R. *Accounting for Ecosystem Services in Eco-LCA: Combining Quantitative & Qualitative Information*. AICHE Annual Meeting, November 8-13, 2009, Nashville, TN. (Talk)
- 32 **Singh S.** and Bakshi B.R. *Accounting for Ecosystem Services in Eco-LCA by combining quantitative and qualitative information*, Life Cycle Assessment IX, (toward the global life cycle economy), Sep 29- Oct 2, 2009, Boston, MA. (Poster)
- 33 **Singh S.** and Bakshi B.R. *Eco-LCA: A tool for quantifying the role of ecological resources in LCA*. IEEE International Symposium on Sustainable Systems and Technology, May 18-20, 2009, Phoenix, AZ (Talk and Poster)
- 34 **Singh S.** and Bakshi B.R. *Rectification of Multiscale Data with Reliability Assessment to Guide External Data Procurement in Life Cycle Assessment*, AICHE, Annual Meeting, November 16-21, 2008, Philadelphia, PA. (Talk)

INVITED PRESENTATIONS

- 1 **Singh S.**, Invited Panelist Talk, “Synergies in Industrial Manufacturing Network : Building Socio-Technical Resilience in Manufacturing”, National Science Foundation Workshop on Resilience, Center for Resilient Infrastructure and Systems at Purdue. March, 2019
- 2 **Singh S.** Departmental Seminar, “Towards Sustainable Management of Biogeochemical Cycles in Coupled Industrial-Natural Systems.” University of Illinois at Chicago, Department of Civil and Materials Engineering, Chicago, April 20th, 2018
- 3 **Singh S.** Seminar at Center for Energy & Environmental Sustainability (CEES), “Towards Sustainable Management of Biogeochemical Cycles in Coupled Industrial-Natural Systems.” Prairie View A & M University, Texas, Nov 20, 2017,
- 4 **Singh S and C. Kennedy**, Estimating the Energy Use and CO2 Emissions of the World’s Cities, IRENA Panel on Renewable Energy Deployment in Cities, Singapore International Energy Week, SIEW, Singapore. (Invited Panel Talk), Oct 2015
- 5 **Singh S.** *Developing Scalable Integrated Framework using Physical Input-Output Model for Nitrogen Related Ecosystem Services.* Division Seminar, Western Ecology Division, Corvallis, OR, September 26th, 2013
- 6 **Singh S.** *Incorporating Biogeochemical Cycles and Complex Network Analysis in Sustainability Assessment Methodologies: A Coupled Natural-Human Systems Approach.* Simon Levin Lab Tea, Princeton University, Princeton, NJ, May 27th, 2013
- 7 **Singh S.** *Introduction to Life Cycle Assessment (LCA), Economic-Input Output LCA (EIO-LCA) and Physical Input-Output Tables (PIOTs).*, Western Ecology Division, US-EPA, Corvallis, OR, October 18th, 2012

JOURNAL/CONFERENCE/PROPOSAL REVIEWING

ACS Sustainable Chemistry & Engineering
2013, The International Symposium on Sustainable Systems and Technology.
Environmental Science & Technology.
Science of the Total Environment, Elsevier.
LCA XIII Conference, 2013
ISSST 2014, 2015, 2016
Journal of Industrial Ecology
Resources, Conservation & Recycling
Ecological Economics
Served on panels for National Science Foundation, Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)

TEACHING EXPERIENCE

Purdue University (Instructor for All Courses Listed Below)

- EEE 430, Spring 2015, 2016, 2017, 2018: Industrial Ecology & Life Cycle Assessment (Senior UG Course Developed at Purdue, Student Enrollment > 55 each year, Interdisciplinary students from Chemical, Mechanical, Aeronautics, Environmental)
- ABE 307, Fall 2015, 2016, 2017, 2018, 2019, 2020, 2021: Momentum Transfer in Biological Systems (Redesigned Momentum Transfer Course for Junior Level Biological Engineering students)

- EEE 560, Fall 2016, 2017; Spring 2019 : Modelling Complexity (Graduate Interdisciplinary Course, Developed at Purdue)
- ChE 320, Spring 2021, Statistics for Chemical Engineers (Junior level, UG) (Co-instructor)

The Ohio State University, Columbus, OH, USA (Guest Lecture/TA)

- Guest Lecturer for ChBE 760 Process Design Course: Life Cycle Analysis in Design of Systems (Winter 2012)
- Guest Lecturer for ChBE 772 – Principles of Sustainable Engineering: LCA fundamentals & sustainability metrics.
- Teaching Assistant: Process Control, Chemical Engineering Department. (Autumn 2010)
- Teaching Assistant: Principles of Sustainable Engineering course (Spring 2009 & 2010)

PROFESSIONAL ASSOCIATIONS

- American Institute of Chemical Engineers (AIChE)
- American Statistical Association
- International Society for Industrial Ecology (ISIE)