

| Day                       | Session | Slot | Time        | Track and Room  |   |   |  |   |  |
|---------------------------|---------|------|-------------|---|---|---|--|---|--|
|                           |         |      |             | 1 (Krutch Theater)  | 2 (Building 3 Main Lounge)  | 3 (Building 4 Main Lounge)  | 4 (Building 7 Main Lounge)   | 5 (Building 8 Main Lounge)  |  |
| Tuesday, June 7 (Morning) |         |      | 8:00-17:00  | Registration (Building 14, in front of Krutch Theater)  |   |   |  |   |  |
|                           |         |      | 8:45-10:00  | Welcome, and Opening Keynote Address: Art Rosenfeld, Distinguished Scientist Emeritus, Lawrence Berkeley National Laboratory (Bldg 14, Krutch Theater)  |   |   |  |   |  |
|                           |         |      | 10:00-10:15 | Coffee Break (Building 14 Hallway and Ginko Court)  |   |   |  |   |  |
|                           |         |      |             | <b>Session Topic</b>  | <b>Material Flow Analysis</b>   | <b>Eco-Industrial Development and Industrial Symbiosis</b>  | <b>Life-cycle Methodology</b>  | <b>Sustainable Consumption and Behavior</b>   | <b>Scenario Development and Analysis</b> |
|                           |         |      |             | <b>Session Chair</b>  | <b>Daniel Muller</b>  | <b>Leonard Baas</b>   | <b>Jeroen Guinee</b>   | <b>Barbara Karn</b>   | <b>Jim Petrie</b>                        |
|                           |         | 1    | 10:15-10:30 | <i>Anthropogenic Aluminum Cycle in the United States from 1930 to 2008</i><br><br>Weiqiang Chen and Thomas Graedel  | <i>Development and Test of an Industrial Symbiosis Identification Tool</i><br><br>Ines Costa, Paulo Ferrao, Leonardo Rosado and Rita Pinto  | <i>Consequential LCA and Scenarios</i><br><br>Jeroen Guinée and Reinout Heijungs  | <i>Attributing GHG Emissions from Deforestation to Countries Importing Biomass</i><br><br>Laura Saikku, Kim Pingoud and Sampo Soimakallio  | <i>Global Metabolism of Metals</i><br><br>Ester van der Voet, Reijo Salminen, Matthew Eckelman, Terry Norgate, Gavin Mudd and Roland Hisschier  |  |
|                           |         | 2    | 10:30-10:45 | <i>UPIOM: A New Hybrid Tool of MFA and Its Application to Primary and Secondary Metals Associated with Construction and Car Manufacturing</i><br>Shinichiro Nakamura, Yasushi Kondo, Kazuyo Matsubae, Kenichi Nakajima and Tetsuya Nagasaka | <i>Data and Knowledge Management for Industrial Symbiosis Development</i><br><br>David Cobbleddick, Adrian Murphy, Lauren Basson and Roland Clift   | <i>Comparative Life Cycle Assessment of Conventional and Green Seal Certified Products</i><br><br>Amit Kapur and Cheryl Baldwin   | <i>The Effects of Climate and Socio-Demographics on Direct Household Carbon Dioxide Emissions in Australia</i><br><br>Sonia Graham, Tira Foran, Heinz Schandl and Liana Williams   | <i>Race among Production, Consumption and Emission: A Decoupling Analysis of GDP, Energy Consumption and CO2 Emission in China During 1980-2008</i><br><br>Liu Zhu, Geng Yong, Xue Bing and Yang Yu   |  |
|                           |         | 3    | 10:45-11:00 | <i>Transition of the Global Aluminum Cycle Induced by the Introduction of Next Generation Vehicles</i><br><br>Hiroki Hatayama, Ichiro Daigo, Yasunari Matsuno and Yoshihiro Adachi  | <i>Diversity and its Role in the Facilitation of Industrial Symbiosis</i><br><br>Paul D. Jensen, Lauren Basson, Malcolm R. Bailey, Emma E. Hellawell and Matthew Leach  | <i>Conceptual Frame for Classification of Pollutants into Emission Based Impact Categories: A Site Specific Approach for Civil Engineering Applications</i><br><br>Anne Ventura | <i>Is there a Potential for Using Natural Resources Much More Efficiently?</i><br><br>Laura Talens, Gara Villaba and Robert Ayres  | <i>Quantifying Carbon Footprint Reduction Opportunities for U.S. Households and Communities</i><br><br>Christopher Jones and Daniel Kammen  |  |
|                           |         | 4    | 11:00-11:15 | <i>The Role of Automobiles for the Future of Aluminium Recycling - Model and Scenarios in Global Scale</i><br><br>Roja Modaresi and Daniel B. Müller  | <i>Eco-industrial Development and Industrial Symbiosis: The Voluntary Environmental Certification Scheme of Eco-industrial Parks of Tuscany (Italy)</i><br><br>Fabio Iraldo, Tiberio Daddi, Sara Tessitore and Marco Frey                                 | <i>Life Cycle Assessment of Photovoltaic Panels Produced in China</i><br><br>Zhouwei Diao and Lei Shi   | <i>Sustainable Concrete Technology throughout Entire Life Cycle</i><br><br>Dubravka Bjezovic, Nina Stirmer, Marijana Serdar, Marija Jelcic Rukavina and Ana Baricevic  | <i>Understanding the Impact of Blending Practices on Estimated Uncertainty in Biofuel Lifecycle Carbon Footprint</i><br><br>Ece Gulsen, Elsa Olivetti, Fausto Freire and Randolph Kirchain  |  |
|                           |         | 5    | 11:15-11:30 | <i>The CO<sub>2</sub> Impact of Yield: Case Studies along Steel and Aluminium Supply Chains</i><br><br>Rachel Milford and Julian Allwood  | <i>Energy and Resource Recovery from a Wastewater Treatment System Coupled with an Algal Photobioreactor</i><br><br>Monica Rothermel, William Barr, Grace Witter, Kayla Reddington, Matt Weschler, Kullapa Soratana, Willie F. Harper, Jr. and Amy Landis | <i>Entropy and Energy: Toward a Definition of Physical Sustainability</i><br><br>Slawomir Hermanowicz and Marc-Francois Muller  | <i>Environmental Impacts of Changes to Healthier Diets in Europe</i><br><br>Arnold Tukker, Sandra Bausch-Goldbohm, Arjan de Koning, Marieke Verheijden, Rene Kleijn, Oliver Wolff, Ignacio Perez Dominguez and Jose Rueda Cantuche | <i>The Development of Scenarios to Examine the Role of Technology Change and Consumers in Delivering Cumulative Emission Reductions and Adapting to Climate Impacts under a 2o &amp; 4 oC Future</i><br><br>Frances Ruth Wood, Alice Bows, John Barrett, Elena Dawkins, Sarah Mander, Carly McLachlin, Mirjam Roeder and Kate Scott |  |
|                           |         |      | 11:30-14:00 | Lunch Break (Lunch at Dining Hall and Grand Court)  |   |   |  |   |  |

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| Tuesday, June 7 (Afternoon and Evening) | 2   | Session Topic |  | Material Flow Analysis  | Eco-Industrial Development and Industrial Symbiosis  | Life-cycle Methodology   | Eco-Design: Products and Services for the Future   | Scenario Development and Analysis  |  |
|   |   | Session Chair |  | Sergio Pacca  | Weslyne Ashton   | Sangwon Suh  | Julian Allwood   | H. Scott Matthews  |  |
|   |   | 1             | 14:00-14:15  | Assessing the Potential of Social MFA<br>Laura Schneider, Matthias Finkbeiner and Marzia Traverso   | Industrial Symbiosis of Algae Cultivation from Life Cycle Perspective<br>Kullapa Soratana and Amy Landis   | Economic Analysis in Life Cycle Assessment<br>Richard Wood   | ICT Compatibility Standards as an Environmental Policy Measure<br>Sachiko Muto and Tineke Egyedi   | Assessing Sensitivity of Variations in Product Formulations: A Case Study of Laundry Detergents<br>Vee Subramanian, Eric Williams, Lizette Borvin, Joby Carlson and Jay Golden         |  |
|   |   | 2             | 14:15-14:30  | Biorefinery Industrial Park Material Flow Analysis and Industrial Chains Construction<br>Qiang Li, Shanying Hu and Jingzhu Shen   | The Variety of Industrial Symbiosis Characteristics in Different Regions of the World<br>Leenard Baas  | Methods Addressing Water Use in LCA: Review and Recommendations<br>Anna Kounina, Manuele Margni, Annette Koehler, Emmanuelle Aoustin and Sebastien Humbert   | LCA, Nanotechnology, and Scale: Assessing the Promise of Nanomaterial Based Photocatalysis<br>Ben Wender   | Industrial Ecology Applications of the Semantic Web and Linked Data<br>Chris Davis, Alfredas Chmieliauskas, Igor Nikolic and Gerard Dijkema  |  |
|   |   | 3             | 14:30-14:45  | From Liquid Metal to Products: Mapping the Global Flow of Steel and Aluminium<br>Jonathan M. Cullen   | Eco-industrial Park Development in China: Matrix, Environmental Performance and Future<br>Jinping Tian, Binjie Lai and Lvjun Chen  | Consistent treatment of wastes and by-products in LCA<br>Bo Weidema  | Environmental Implications of Technology Transition: Toxicity and Resource Depletion Potentials for End-of-Life Electronics<br>Seong-Rin Lim, Carl Lam and Julie Schoenung       | Firm-Level Ecosystem Services Valuation Using Functional Substitutability – Dynamic Systems Ecological and Decision Analysis Modeling<br>Stephen Comello and Michael Lepech            |  |
|   |   | 4             | 14:45-15:00  | Dynamic Substance Flow Analysis for China's Phosphorous Resource<br>Dunchao Ma and Shanying Hu  | Characterizing Stakeholders' Behavior and Coordination Processes of IE Projects: Methodology and Case Study<br>Irene Adamides, Sabrina Brulot and Muriel Maillefert  | Explicit Market Modelling in LCI<br>Emilia Moreno-Ruiz, Bo P. Weidema and Gregor Wernet  | Development and Testing of a Tool Set to Rapidly Identify and Evaluate a Range of GHG Reducing Options for Consumer Goods Manufacturers<br>Nancy M P Bocken and Julian M Allwood | Carbon Footprint and the Problem with a Single Emissions Metric: The Case of the Municipal Waste Landfill<br>Anders Damgaard, Morton A. Barlaz, Joseph F. DeCarolis and James W. Lewis |  |
|   | 5   | 15:00-15:15   | Mass Flow Analysis as a Practical Tool for Urban Sustainability Practice<br>Lawrence Baker   | Analyzing the Characteristics of Resource Circulation Networks: Focused on Cheongju Eco-Industrial Park (EIP)<br>Yong Un Ban, Taeho Lee, Humkun Jeong and Munhwan Jeon  | Life Cycle Assessment on Life and Death: Comparing Lives Saved by an Airbag with Lives Lost during Its Production<br>Henrikke Baumann, Rickard Arvidsson, Hui Tong and Ying Wang   | Assessing the Non-Carbon Impacts of an Emerging Bioenergy Industry<br>Shelie Miller, Jim Chamberlain, Jose Alfaro and Ben Sharp  | Shifts in Asphalt Resurfacing Supply-chain Emissions due to Changing Truck Traffic on Two Highways in Berkeley<br>Nakul Sathaye, Arpad Horvath and Samer Madanat                 |  |  |
|   | 15:15-15:45 <b>Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)</b>       |               |  |   |  |  |  |  |  |
|   | 3   | Session Topic |  | Eco-Efficiency  | Footprint Analysis, Reporting and Communication  | Food and Agricultural Systems  | Industrial Ecology in Developing Countries   | Scenario Development and Analysis  |  |
|   |   | Session Chair |  | Roland Geyer  | Nicholas Santero   | Greg Thoma   | Marian Chertow   | Jim Petrie   |  |
|   |   | 1             | 15:45-16:00  | From Macro Batch to Micro Conti Manufacturing: A Novel Path to Eco-efficient Chemical Processes<br>Laura Grundemann and Stephan Scholl  | A Mash-up Approach for Environmental Impact Assessment of Websites<br>Jorge Luis Zapico, Nils Brandt and Marko Turpeinen   | The Characteristics of Food Waste Generation by Food Consumption Behavior<br>Munsoo Ju and Masahiro Osako  | Industrial Ecology Based Road Maps for Urban Services in Developing Countries<br>Paulo Ferrao, Samuel Niza and Maria do Rosario Macario  | Penetration of Technologies for Climate Change Mitigation and Criticality of Associated Metals<br>Seiji Hashimoto, Kei-ichi Sabase, Shinsuke Murakami and Yuichi Moriguchi             |  |
|   |   | 2             | 16:00-16:15  | Data Envelopment Analysis - Utilization of a Production Management Oriented Benchmarking Concept for Investigation on Ecological and Economic Efficiency of Cities<br>Iris Lehmann, Jörg Hennersdorf and Clemens Deilmann | Gauging Attitudes and Subjective Norms about New Approaches Relating to Data in the Life Cycle Assessment Community<br>Steven Young and Bianca Sayan   | Greenhouse Gas and Energy Footprint of California Almond Production<br>Elias Marvinney, Alissa Kendall and Sonja Brodt   | Possible Ways for Japan to Contribute to the Yellow River Basin, China for Realizing Low-Carbon and Saving-Water Society<br>Osamu Higashi and Hiroaki Shirakawa                  | Sustainable Demand for Wood? – The German Case<br>Witold-Roger Pogonietz and Silke Feifel  |  |
|   |   | 3             | 16:15-16:30  | Coal Gasification by Conventional versus Calcium Looping Process – A Life Cycle Energy, Global Warming, and Water Assessment<br>Berrin Kursun, Shewetha Ramkumar, Bhavik Ramesh Bakshi and Liang Shih Fan                 | Comparison of Carbon and Water Footprint<br>Ertug Ercin and Arjen Y. Hoekstra  | Projected Water and Land Use in Future Global Agriculture: Scenarios and Related Impacts<br>Stephan Pfister, Peter Bayer, Annette Koehler and Stefanie Hellweg   | Life Cycle Assessments of Three Different Sewage Systems<br>Victor Chaves, Eduardo Rosco and Carmen Madrigal   | Beyond Coal - A Resilient New Economy for Appalachia<br>John Todd, Samir Doshi and Anthony McInnis   |  |
|   | 4   | 16:30-16:45   | Environmental Performance of Integrated Remediation and Resource Recovery of Landfills - Critical Factors<br>Niclas Svensson, Per Frändegård, Joakim Krook, Mats Eklund and Nils Johansson | Veolia's Water Impact Index: a New Tool for Water Footprinting<br>Edwin Pinero, Jean Baptiste Bayart, Frank Benichou, Julien Grimaud and Emmanuelle Aoustin   | Assessing the Environmental and Economic Sustainability of Land-use Systems with a Consequential Life Cycle Approach: A Case Study of Food, Feed, Fuel, Fibre and Carbon Sinks in the UK<br>Miguel Brandao, Roland Cliff and Llorenç Mila i Canals | Mitigating Climate Change through Renewable Energy Projects in Developing Countries with Case Study of Waste to Energy Project in Nepal and Energy Balance of the System<br>Dharma Raj K.C, Sung Woo Kim and Jagan Nath Shrestha | Evaluation of Resources, Land and Cost Constraints of Large-scale Photovoltaic Applications<br>Natalija L. Glusac and Sangwon Suh  |  |  |
|   | 16:45-18:00 <b>Poster Session with Reception (Building 14, Rooms 102 and 104)</b>         |               |  |   |  |  |  |  |  |
|   | 18:45-20:45 <b>Dinner at The Faculty Club (University of California, Berkeley Campus)</b> |               |  |   |  |  |  |  |  |

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| Wednesday, June 8 (Morning) | 8:00-9:00   |                |             | Panel Discussion: Industrial Ecology in Practice (Chair: Roland Clift) (Krutch Theater)   |   |  |  |   |  |
|                             |             | Session Topic  |             | Material Flow Analysis  | Footprint Analysis, Reporting and Communication   | Buildings and Infrastructure Systems   | Alternative Fuels  | Scenario Development and Analysis   | Life-cycle Methodology   |
|                             |             | Session Chair  |             | Daniel Muller   | Matthias Finkbeiner   | Michael Lepech   | Roland Geyer   | Christopher Kennedy   | Sangwon Suh  |
|                             |             | 1              | 9:10-9:25   | <i>Resource Efficiency? Material Flow Analysis on the Edge between Accounting Practice and Political Implementation</i><br>Nina Eisenmenger, Anke Schaffartzik, Fridolin Krausmann and Marina Fischer-Kowalski                  | <i>Current Lack and Needs for Better Life Cycle Inventory Data for Water Footprinting</i><br>Samuel Vionnet, Anna Kounina, Yves Loerincik, Damien Friot, Manuele Margni and Sébastien Humbert   | <i>Towards Carbon Neutral Settlements – The Role of Urban Infrastructure?</i><br>Helene Slagstad and Helge Brattebø  | <i>Biofuel Production on Marginal Urban Lands</i><br>Amy Landis, Xi Zhao, Chris Rovensky, Claire Antaya, Jason Monnell and Briana Niblick  | <i>Analyzing the Formation and Growth of District Energy Systems</i><br>David Ruff, Christopher Kennedy and Graham Harding  | <i>Bioenergy and Land Use Changes: A Novel Approach for Assessment in Consequential LCA</i><br>Yalda Shayeghi, Liselotte Schebek and Rüdiger Schaldach   |
|                             |             | 2              | 9:25-9:40   | <i>Future Global Scrap Supply Derived from a Dynamic Country-level Nickel Study</i><br>Barbara Reck and T.E. Graedel  | <i>Characterizing the Health Footprint of Energy Choices</i><br>Audrey Barrett, Thomas McKone and Agnes Lobscheid   | <i>LCA in Building Design Process: Innovative Architecture and Engineering Case Studies</i><br>Kathrina Simonen  | <i>The Importance of a Standardized Framework in Biofuels Studies</i><br>Bianca Sayan, Gorrey Dias and Geoff Lewis   | <i>Scenarios for Distributed Energy Systems for More Resilient Cities</i><br>Tatiana Spitsyna and Ronald Wennersten   | <i>Algorithm for Estimating Hourly Electricity Dispatch using Publicly Available Information for Application to cLCA</i><br>Vineet Raichur, Duncan Callaway and Steven Skerlos   |
|                             |             | 3              | 9:40-9:55   | <i>Virtual Phosphorus Ore Requirement of Japanese Economy</i><br>Kazuyo Matsubae, Jun Kaijima, Takehito Hiraki and Tetsuya Nagasaka   | <i>Community-Level Energy and Greenhouse Gas Benchmarking Practices and Implications for Local Sustainability Programming</i><br>Michael Blackhurst, H. Scott Matthews, Aurora Sharrard, Chris Hendrickson and Ines Lima Azevedo                | <i>Using Generative Design to Optimize Energy Requirements of Buildings</i><br>John Basbagill, Michael Lepech, Mark Gouthorpe and Kaustuv DeBiswas   | <i>Thermodynamic Efficiencies of Corn Based Bio-ethanol and Solar Energy as Transportation Fuels</i><br>Christopher Gino and Eric Williams   | <i>Evaluating the Development and Demographics of Electrical Grids in Third World Countries Through Agent Based Models</i><br>Jose Alfaro and Shelle Miller   | <i>Evaluating the Ability of Recycling Allocation Approaches to Capture the Timing of Material Flows and Emissions for Aluminum</i><br>Colin McMillan and Gregory Keoleian   |
|                             |             | 4              | 9:55-10:10  | <i>Recyclability Evaluation of Phosphorous from Steel Making Slag in terms of Total Materials Requirement</i><br>Eiji Yamasue   | <i>Greening the Service Industries: A Case Study Hybrid-Based Life Cycle Assessment of a United States Engineering Consulting Firm</i><br>Scott Shrake, Amy Landis and Melissa Bilec  | <i>Trade-offs between Impact and Service: Buildings and Infrastructure</i><br>James Kallalos   | <i>Can We Design an Effective National Low-Carbon Fuel Standard?</i><br>Kimberley Mullins, Matthew Kocoloski and W. Michael Griffin  | <i>Facilitating Greenfield Industrial Development using Collaborative Semantic Tools and Agent Based Models</i><br>Chris Davis and Igor Nikolic   | <i>Impacts on Biodiversity from Land Use and Land Use Changes – Did We Forget the First Fundamental Question?</i><br>Ottar Michelsen   |
|                             |             | 5              | 10:10-10:25 | <i>Technology Forecasting of Rare Earth and Scarce Metal Use</i><br>Robert Ayres, Gara Villalba and Laura Talens  | <i>Urban Water Mass and Energy Balance Analysis, Performance Indicators and Reporting</i><br>Steven Kerway  | <i>Weight of City Overtime: Spatial Material Stock Analysis Using 4d-GIS</i><br>Hiroki Tanikawa, Ji Han and Seiji Hashimoto  | <i>Microalgae Cultivation Utilizing an Industrial Partnership</i><br>Judith Cirulis, Ashley Scott and Greg Ross  | <i>Agent-based Modelling of a Woodfuel Market – Factors that Affect the Availability of Woodfuel</i><br>Bernhard Steubing, Fabian Kostadinov, Amineh Ghorbani, Patrick Wäger, Rainer Zah, Oliver Thees and Christian Ludwig | <i>Developing a Generic Systems Process Tool for Diverse Quality Management: Challenges and Opportunities</i><br>Philip Sinclair and Michael Peters  |
|                             | 10:25-10:45 |                |             | Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)  |   |  |  |   |  |
|                             |             | Session Topic  |             | Complex Systems and Agent Modeling  | Footprint Analysis, Reporting and Communication   | Managing End-of-Life Products  | Energy Systems   | Scenario Development and Analysis   | California's Future: Transportation and Cities   |
|                             |             | Session Chair  |             | Gerard Dijkema  | Michael Lepech  | Kieren Mayers  | Alissa Kendall   | Frank Boons   | Mikhail Chester  |
|                             |             | 1              | 10:45-11:00 | <i>The State and Future Directions of Agent Based Modeling in IE</i><br>Igor Nikolic and Gerard Dijkema   | <i>Data Acquisition and Indicator Disaggregation for Physical Input-Output Table in Chinese Cities</i><br>Sai Liang and Tianzhu Zhang   | <i>A Manure-Based Eco-park: How Society and Technology Affects the Environmental Performance of Bioogas from Manure</i><br>Johan Pettersen, Christine Hung, Oivind Hagen and Kjeil Josefsen                                | <i>On the Design of Sustainable Energy Systems</i><br>Andre Pina, Carlos Silva and Paulo Ferrao  | <i>How Much Will Reducing Greenhouse Gases in the US Residential Sector Cost?</i><br>Ines Azevedo, Granger Morgan, Karen Palmer and Lester Lave   |  |
|                             |             | 2              | 11:00-11:15 | <i>Reflecting Complexity – Challenges for Modelling Complex Industrial Ecosystems</i><br>Lauren Basson, Alexandra Penn, Frank Schiller, Amy Woodward and Angela Druckman  | <i>Consideration of Greenhouse Gases in Some Environmental Certification Schemes</i><br>Emma Keller, Llorenç Mila-i-Canals, Jaqi Lee and Roland Clift   | <i>LCA-Based Decision Support Tool for Industrial Waste Management</i><br>Carl O. Vadenbo, Michael E. Boesch and Stefanie Hellweg  | <i>Decentralized Automated Demand Response Control for Residential Buildings</i><br>Pia Stoll and Nils Brandt  | <i>Modeling Uncertainty in Biomass Greenhouse Gas Emissions with the Calculating Uncertainty in Biomass Emissions (CUBE) Model</i><br>Aimee Curtright, Constantine Samaras, David Johnson and Henry Willis                  | <i>10-minute presentations followed by discussion:</i><br><br><i>Stephanie Pincett: Methodological Improvements for Sustainable Community Assessment</i>   |
|                             |             | 3              | 11:15-11:30 | <i>Diversity, Functionality, and Behavioural Responses as Determinants for Resilience and Robustness of Industrial Network Evolutions</i><br>Rudolf Kempener, Peter Kaufmann and Sigrid Stajkic                                 | <i>Including Priority Air Pollutants in Climate Footprints</i><br>Mark Huijbregts and Carlijn Hendriks  | <i>Waste Treatment Hierarchy for Scrap Tires: Comparative Attributional and Consequential Life Cycle Assessment of Material Recycling vs. Tire-Derived Fuel Combustion</i><br>Rebe Feraldi, Melissa Huff and Sarah Cashman | <i>Pre- and Post Shift of Peak Power Consumption in the Stockholm Region 2012</i><br>Pia Stoll and Gargi Bag   | <i>Environmental Implications of Large-scale Adoption of Wind Power: A Scenario-based Life Cycle Assessment</i><br>Anders Arvesen and Edgar Hertwich  | <i>Bill Eisenstein: Transportation Policy and Sustainable Urban Growth</i>   |
|                             |             | 4              | 11:30-11:45 | <i>Assessing Resilience and Adaptive Capacity of Developing Industrial Ecosystems: A Case Study in the South Humber Bank, United Kingdom</i><br>Alexandra Penn, Frank Schiller, Amy Woodward, Angela Druckman and Lauren Basson | <i>A Product Attribute to Impact Algorithm to Streamline ICT Environmental Footprinting</i><br>Elsa Olivetti, Melissa Zgola, Christopher Weber, Sarah Boyd, Jennifer Mangold, Ramzy Kahhat, Eric Williams, Jeremy Gregory and Randolph Kirchain | <i>Thermodynamic Consideration on Accompanying Elements During Cyclic Use of Metals</i><br>Kenichi Nakajima, Osamu Takeda, Takahiro Miki, Kazuyo Matsubae, Shinichiro Nakamura and Tetsuya Nagasaka                        | <i>A 100-Year Historical Energy and Carbon Footprint for Allegheny County, PA and Potential Technological, Socio-Economic, and Regulatory Influences</i><br>Michael Blackhurst and H. Scott Matthews | <i>Assessment of Future Water Availability and Water-Use Impact Considering Climate Change, Population and Energy Scenarios: A Case in Minnesota</i><br>Yiwen Chiu and Sangwon Suh  | <i>Lee Schipper: The Blind Leading the Blind: Can We Reduce CO<sub>2</sub> Emissions as We Must When We Don't Really Know What They Are?</i><br><br><i>Gregg Albright: Long-Distance Travel and Urban Growth: California High-Speed Rail</i> |
|                             |             | 5              | 11:45-12:00 | <i>From Static to Dynamic Criticality Assessment: Linking Agent-based Modelling with Material Flow Modelling Approaches</i><br>Christof Knoeri, Patrick Waeger, Anna Stamp and Hans-Joerg Althaus                               | <i>Incorporating Uncertainty into Firm Scope 3 Greenhouse Gas Emissions Estimates</i><br>Jeremy Gregory, Pauline Jeong, Elsa Olivetti, Randolph Kirchain and Edgar Blanco   | <i>Deposit-Refund Systems Revisited: Categorization Based on Objects and Exploration on Further Applications</i><br>Tomohiro Tasaki, Daisuke Numata and Naoko Tojo   | <i>Transition to Low-Carbon Cities: Applications of the PURGE Model</i><br>Eugene Mohareb and Christopher Kennedy  | <i>Potential for Using EE-IO data for Product Labeling : Case Study "Printed Matter"</i><br>Theo Geerken, An Vercauteren and Evelien Dils   |  |
|                             | 12:00-14:15 |                |             | Lunch Break (Lunch at Dining Hall and Grand Court)  |   |  |  |   |  |

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| Wednesday, June 8 (Afternoon and Evening) | 6           | Session Topic |   | Environmentally Extended Input-Output Analysis   | Sustainable Cities, Buildings and Construction   | Policy Intervention and Planning  | Energy Systems   | Biomass and Bioenergy  | Life-cycle Methodology   |   |
|   |             | Session Chair |   | Yasushi Kondo  | Seppo Junnila  | Edgar Hertwich  | Stefanie Hellweg   | Yuichi Moriguchi   | Jeroen Guinee  |   |
|   |             | 1             | 14:15-14:30   | <i>A Multi-regional Environmental Extended Supply and Use Database - Results of the EXIOPOL Project</i><br>Arnold Tukker   | <i>Comparing Geographic, Hybrid, and Full Consumption-Based Greenhouse Gas Accounting Methods for 45 U.S. Cities</i><br>Abel Chavez and Anu Ramaswami                            | <i>Estimating the Environmental Performance of Recycling through Material Flow Analysis</i><br>Brandon Kuczenski and Roland Geyer   | <i>Modelling Integrated Urban Waste and District Heating Systems - Environmental Performance and Critical Parameters, City of Trondheim, 1986-2020</i><br>Helge Brattebø and Marte Reenaas           | <i>Predicting the Future: Determining Biomass Production of New Crops for Bioenergy</i><br>Ben Sharp and Shelle Miller   | <i>Dynamic Life Cycle Assessment for Project Impact Budgeting and Management</i><br>Sarah Russell-Smith and Michael Lepach   |   |
|   |             | 2             | 14:30-14:45   | <i>Input-Output Economics in Industrial Ecology: The Relationship Revisited</i><br>Faye Duchin   | <i>Empirical Comparison of Residential Construction Carbon Emissions and Consumer Housing Carbon Footprint</i><br>Antti Säynäjoki, Jukka Heinonen and Seppo Junnila              | <i>Application of LCA to Asphalt Pavement Management Policy</i><br>Jeffrey Lidicker, Samer Madanat, Arpad Horvath and Nakul Sathaye   | <i>Projected Natural Resources Demand from Large Scale Penetration of Solar Power</i><br>Hyung Chul Kim and Vasilis Fthenakis  | <i>Integrating Partial Equilibrium Modeling and LCA to Evaluate Forest-based Biofuel Policy</i><br>Mason Earles and Anthony Halog  | <i>Review of Nano-materials' Environmental Impacts and the Applicability of Life-cycle Impact Assessment Framework to Address Them</i><br>Sheetal Gavankar, Sangwon Suh, Arturo Keller and Roland Geyer    |   |
|   |             | 3             | 14:45-15:00   | <i>Analyzing the Environmental Repercussion Effects of Metropolitan Consumption Activities: An Interregional Waste Input-Output Approach</i><br>Makiko Tsukui, Shigemi Kagawa and Yasushi Kondo            | <i>A Hybrid LCA Approach to Evaluate Housing Companies' Greenhouse Gas Emissions</i><br>Riikka Kyrö, Jukka Heinonen, Antti Säynäjoki and Seppo Junnila                           | <i>Equity within Planetary Boundaries: Introducing Converge</i><br>Brynhildur Davidsdottir, Sigrun Maria Kristinsdottir and Kristin Vala Ragnarsdottir                                  | <i>Energy-related CO2 Emissions in China by 2050</i><br>Bo Xu, Qie Sun, Ronald Wennersten and Nils Brandt  | <i>Consequential Life Cycle Assessment on Corn Ethanol Expansion in the U.S. Using Multivariate Analysis</i><br>Junghan Bae, Junbeum Kim, Scott Yee and Sangwon Suh  | <i>A Method for Bounding Life Cycle Energy Consumption</i><br>Deanna Matthews, Benjamin Rice, H. Scott Matthews and Francis McMichael  |   |
|   |             | 4             | 15:00-15:15   | <i>AISHA : A Tool for Constructing Time Series and Large Environmental and Social Accounting Matrices Using Constrained Optimisation</i><br>Arne Geschke, Manfred Lenzen, Keiichiro Kanemoto and Dan Moran | <i>Embodied Impacts of Construction Projects on Energy, Environment and Society: Scenario Projections for China in 2015</i><br>Yuan Chang, Robert Ries, Yaowu Wang and Xue Zhang | <i>Six Earths - Measuring the Icelandic Ecological Footprint</i><br>Brynhildur Davidsdottir and Sigurður Eyberg   | <i>Comparison of Electricity Allocation Methods for Plug-in Hybrid Electric Vehicles</i><br>Jarod Kelly and Gregory Keoleian   | <i>Life Cycle Energy and Greenhouse Gas Emissions for an Ethanol Production Process Based on Blue-Green Algae</i><br>Dexin Luo, Zushou Hu, Dong Gu Choi, Valerie M. Thomas, Matthew J. Realf and Ronald R. Chance                        | <i>Life Cycle Assessment of Integrated Recycling Scheme of Household Waste Plastics Including Voluntary Collection of Plastic Trays</i><br>Asako Okuno, Jun Nakatani, Kazuo Yamamoto and Fumiyuki Nakajima |   |
|   |             | 5             | 15:15-15:30   | <i>Understanding How Steel Flows through the UK Economy - An Economic Analysis Based on Input-Output Techniques</i><br>Alexandra Patel and Julian Allwood  | <i>Creating a Low Carbon City through Urban Symbiosis: A methodological framework</i><br>Martina Maria Keitsch and Yong Geng   | <i>Environmental Policy Instruments for Waste Prevention in a Simulation Model of Industrial Dynamics</i><br>Eric Broullat and Vanessa Oltra  | <i>Optimal Replacement of Residential Air Conditioning Equipment to Minimize Energy, Greenhouse Gas Emissions, and Consumer Cost in the US</i><br>Robert De Kleine, Gregory Keoleian and Jarod Kelly | <i>Challenges in Introducing Effective GHG Performance Rules for Biomass-based Products</i><br>Sampo Soimakallio   | <i>Impact of Allocation in LCA of Textiles Products</i><br>Rachel Arduin and Sergio Pacca  |   |
|   |             | 6             | 15:30-15:45   | <i>An Impact Analysis of Korea's CO2 Reduction Policy on the Economy and Energy Flow in Busan Region - CGE Approach</i><br>Seogwoong Moon and Samhwa Jung  | <i>When Low-Carbon Means Low-Cost: Putting Lessons from Nature to Work in our Cities</i><br>Stephen Salter   | <i>Measuring and Monitoring Eco-innovation for Industrial Sustainability Policies in Europe</i><br>Fernando Javier Diaz Lopez and Carlos Montalvo                                       | <i>Modeling Life-cycle Inventories of Hydroelectric Power Plants</i><br>Vincent Moreau, Gontran Bage, Denis Marcotte and Rejean Samson   | <i>Albedo Changes Offset Lost Carbon Sinks Following Expanded Harvesting of Boreal Forests for Bioenergy in Norway</i><br>Ryan Bright, Anders Hammer Strømman and Glen Peters  | <i>The Influence of Value Choices in Life Cycle Impact Assessment of Human Health Damage</i><br>An De Schryver, Sebastien Humbert and Mark Huijbregts  |   |
|   |             | 15:45-16:15   |   | Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)   |  |   |  |  |  |   |
|   |             | 7             | Session Topic   |  | Sustainable Water Systems  | Footprint Analysis, Reporting and Communication   | Policy Intervention and Planning   | Energy Systems   | Scenario Development and Analysis  | Life-cycle Management & Organization of Product Chains  |
|   |             |               | Session Chair   |  | Stephan Pfister  | Eric Williams   | Clint Andrews  | Alissa Kendall   | Eric Masanet   | Henrikke Baumann  |
|   |             |               | 1   | 16:15-16:30  | <i>Life Cycle Consumptive Water Use for Oil Shale Development and Implications for Water Supply in the Oil Shale Region</i><br>Aweewan Mangmeechai and Paulina Jaramillo         | <i>Review of Data, Estimation Techniques, and Allocation Methods for Linking Water Use with Consumption Activities</i><br>Stephan Lutter, Troy Hawkins, Ertug Ercin and Thomas Wiedmann | <i>Estimating the Reserve in Urban Mine</i><br>Shinsuke Murakami and Rie Murakami-Suzuki   | <i>Climate Change Impacts, Structural Vulnerability and Resilience of Regional Energy Supply Systems: Assessment Methodology and Results from Northwest Germany</i><br>Stefan Goessling-Reisemann, Soenke Stuehrmann and Jakob Wachsmuth | <i>Mineral Scarcity, Back with Vengeance</i><br>Rene Kleijn, Ester van der Voet and Gert Jan Kramer  | <i>Drivers and Practices of Green Supply Chain Management in Japan and China: A Comparative Study</i><br>Sun Ying, Tsuyoshi Fujita, Akihisa Mori, Qinghua Zhu |
|   |             |               | 2   | 16:30-16:45  | <i>Integrating Product Water Quality Effects in Holistic Assessments of Water Systems</i><br>Martin Rygaard, Erik Arvin and Philip John Binning                                  | <i>On Definition of Footprints and Consumption-based Indicators in an Input-Output Framework</i><br>Jan Weinzettel and Troy Hawkins   | <i>Reducing Combined Sewer Overflows using Green Infrastructure</i><br>Mallory Squier, Carli Flynn and Cliff Davidson  | <i>Resilience of Energy Infrastructures to Climate Change</i><br>L. Andrew Bollinger, Igor Nikolic and Gerard Dikema   | <i>Scenario Analysis on Future Structural Change of China's Paper Industry: Policy Implications for Resource Conservation and Water Pollution Reduction</i><br>Chao Zhang, Jining Chen and Zongguo Wen     | <i>The Construction and Handling of Chemical Risk Information in a Paint Supply Chain</i><br>Kristin Fransson and Sverker Molander                            |
|   |             |               | 3   | 16:45-17:00  | <i>Embodied Energy of Water Supply Systems</i><br>Qiong Zhang, Weiwei Mo, James Mihelcic and David Hokanson  | <i>The Global Carbon Footprint of Consumption: Findings from the Eora Model</i><br>Dan Moran, Manfred Lenzen, Arne Geschke and Keiichiro Kanemoto                                       | <i>Business Case of Industrial Sector Engagement in Conservation Efforts of a Large Marine Ecosystem in the Philippines</i><br>Rico Ancog  | <i>The Sustainability of Bioethanol—So How Does the Pig Farmer Fit in?</i><br>Lise Laurin, Kiyotada Hayashi and Susumu Uchida  | <i>Model Based Study on the Sustainability of an Integrated System</i><br>Prakash Kotecha, Urmila Diwekar and Heriberto Cabezas  | <i>Reconceptualizing Product Systems Using LCA</i><br>Carla R. Vitolo Coelho and Sarah J. McLaren   |
|   |             | 4             | 17:00-17:15   | <i>Life Cycle Assessment Impact Indicator for Water Use in the Built Environment</i><br>Neetika Chhabra, Rodrigo Castro-Raventos and Robert Ries   | <i>Carbon Footprinting of Products, Carbon Offset Projects and Life Cycle Assessment: The Same but Different?</i><br>Steven Young  | <i>Optimal Insulation Thicknesses According to Variable Indicators for the EU25 Countries</i><br>York Ostermeyer, An De Schryver and Holger Walbaum                                     | <i>Environmental Due Diligence for CO2 mitigation</i><br>Edgar Hertwich, Anders Arvesen, Bhawna Singh and Thomas Gibon   | <i>Temporal Implications of Life Cycle Greenhouse Gas Emissions for Lignocellulosic Ethanol Pathways with Carbon Storage</i><br>Ghasideh Pourhashem, Sabrina Spataro and Paul R. Adler   | <i>Beyond Materials Stewardship - Translating Life Cycle Thinking into Strategy and Action Plans for the Mining, Minerals and Metals Value Chain</i><br>Jim Petrie, Lauren Basson and Roland Cliff         |   |
|   | 17:15-18:30 |               | Poster Session with Reception (Building 14, Rooms 102 and 104)                |  |  |   |  |  |  |   |
|   | 19:00-21:00 |               | Dinner at Clark Kerr Campus (Dining Hall, Dining Hall Patio, and Grand Court) |  |  |   |  |  |  |   |

| Day                        | Session     | Slot        | Time        | Track and Room   |  |   |   |  |   |                      |                      |
|----------------------------|-------------|-------------|-------------|--|--|---|---|--|---|----------------------|----------------------|
|                            |             |             |             | 1 (Krutch Theater)   | 2 (Building 3 Main Lounge)   | 3 (Building 4 Main Lounge)  | 4 (Building 7 Main Lounge)  | 5 (Building 8 Main Lounge)   | 6 (Building 10 Garden Room)   |                      |                      |
| Thursday, June 9 (Morning) |             |             |             | <b>Environmentally Extended Input-Output Analysis</b>  | <b>Eco-Industrial Development and Industrial Symbiosis</b>   | <b>Life-cycle Methodology</b>   | <b>Sustainable Consumption and Behavior</b>   | <b>Scenario Development and Analysis</b>   | <b>Buildings and Infrastructure Systems</b>   |                      |                      |
|                            |             |             |             | <b>Session Chair</b>   | <b>Arnold Tukker</b>   | <b>Weslyne Ashton</b>   | <b>Edgar Hertwich</b>   | <b>Angela Druckman</b>   | <b>Gerard Dijkema</b>   | <b>Seppo Junnila</b> |                      |
|                            | 1           | 8:15-8:30   |             | <i>Building Eora: a Global Multi-region Input Output Model at High Country and Sector Detail</i><br>Keichiro Kanemoto, Manfred Lenzen, Arne Geschke and Dan Moran  | <i>An Innovative and Sustainable Strategy to Meet the Need of Infrastructures of Territories: A French Case Study of Use of Secondary Raw Materials in the Construction of a Road</i><br>Sabrina Brulot, Marion Stoos and Gregory Lannou   | <i>An Empirical Method for Examining the Value of Passenger Vehicle Lighthweighting</i><br>Elisa Alonso, Theresa Lee, Richard Roth and Randolph Kirchain  | <i>Bioplastic Production from Biogas Methane: Laboratory-scale Operation and Life Cycle Assessment</i><br>Katherine Rostkowski, Michael Lepech and Craig Criddle  | <i>Reflection of Resource Supply Constraints to Macroeconomic Scenario Analysis Using Multi-sectoral Growth Model</i><br>Satoshi Kojima, Tsuyoshi Adachi and Takashi Yano  | <i>Carbon Benchmarking of Residential and Commercial Concrete Buildings</i><br>Nicholas Santerio, John Ochsendorf and Leslie Norford    |                      |                      |
|                            | 2           | 8:30-8:45   |             | <i>Mapping Flows of Embodied Emissions through the Global Production System – A Quantitative Investigation Using a Global Multi-regional Input-Output Model</i><br>Andrew Skelton and Dabo Guan  | <i>Industrial Symbiosis in Europe</i><br>Wouter Spekkink, Frank Boons, Leo Baas, Henrikke Baumann, Sabrina Brulot, Pauline Deutz, Chris Davis, Mats Eklund, David Gibbs, Saied Hatefpour, Raff Isermann, Gjsbert Koorevaar, Guillaume Massard, Elena Romero, Dalia Sakr and Veerle Verguts | <i>Assessment of Resource Use by the Five Aspects: Availability, Recyclability, Substitution, Scale up and Self provision</i><br>Anton Zuser and Helmut Rechberger  | <i>Life Cycle Assessment Applied to Events: The Case Study of Gymnastrada</i><br>Elisa Tatti, Anna Kounina, Sarra Harbi, Yves Loerincik, Caroline Coquerel and Sebastien Humbert  | <i>The Limit of Resource Circulation to Address Resource Supply Constraints: A Scenario Analysis Using a Combination of Material Flow Analysis and Multi-sectoral Growth Model</i><br>Takashi Yano, Shinsuke Murakami and Satoshi Kojima | <i>Infrastructure Ecology: A Conceptual Model for Understanding Urban Sustainability</i><br>Ming Xu and Josh Newell                     |                      |                      |
|                            | 3           | 8:45-9:00   |             | <i>Extracting Tree-like Structure from Complex Production Network Based on Structural Path Analysis and Triangulation of Input-Output Table</i><br>Yasushi Kondo, Anders Hammer Strømman, Shigemori Kagawa and Keisuke Nansai                                      | <i>"Uncovering" Industrial Symbiosis in the City of Guelph: Revisiting the Theory</i><br>Katelyn Harris, Khosrow Farahbakhsh and Nonita Yap  | <i>Application of Life Cycle Assessment to Supply Optimization</i><br>Sergio Galeano, Patrick M. Smorch and Michael S. Richardson   | <i>Material Flow Modeling of British Columbia's Forest Products Industry: Volume Balances of Wood Fibre in 2007</i><br>Yu Li, Hugues Petit-Etienne and Paul McFarlane   | <i>Measuring and Controlling National Consumption of Global Resources</i><br>Stefan Brünge   | <i>Assessing Whole Building Sustainability: A Hybrid LCA Approach</i><br>Barbara Lippatti and Sangwon Suh                               |                      |                      |
|                            | 4           | 9:00-9:15   |             | <i>The Application of an Environmentally Extended Multi-regional Input-Output Model to Investigate the Role of Technological Change and Consumption Practices in Delivering Low Carbon Futures for the UK</i><br>Frances Ruth Wood, John Barrett and Elena Dawkins | <i>Industries Involvement in Industrial Symbiosis Projects</i><br>Karine Markewitz, Jean-Francois Vermette, Jennifer Pinna, Marie-Charlotte Vincent and Claude Mabeux-Picard   | <i>Are We Heading for a Dysprosium Crisis? (A Discussion of Rare Earths and Uncommon Metals in a Life Cycle Framework)</i><br>Barbara Kam   | <i>What Do We Do with Our Carbon? An Exploration into the Carbon Footprint of UK Households</i><br>Angela Druckman and Tim Jackson  | <i>A Comparative Assessment of Life-cycle Assessment and Communication Tools</i><br>Rita Garcia and Fausto Freire  | <i>Capturing Embodied Energy in China's New Urban Lands by Remote Sensing</i><br>Matthew Eckelman and Peter Christensen                 |                      |                      |
|                            | 5           | 9:15-9:30   |             | <i>Linking Environmental Extensions to Input-Output Tables Using External Cost Values</i><br>Wolf Müller, Philipp Preiss and Rainer Friedrich  | <i>Eco-Industrial Park Initiative in South Korea: Systems and Outcomes</i><br>Song Hwa Chae, Jang Hun Lee, Bong Jun Min and Kyung Sik Lee  | <i>Spatial Heterogeneity of Health Impacts from Air Emissions</i><br>Thomas McKone and Agnes Lobscheid  | <i>Lifestyle and Household consumption: A Transition to Sustainable Consumption and a Low Carbon Future</i><br>Dami Moon, Hiroki Tanikawa, Hitomi Nakanishi, Liara Williams, Heinz Schandl and Tira Foran                   | <i>Innovative EcoCloud™ Helps Silicon Valley Companies Adopt Sustainable Practices</i><br>Eric Rosenblum, Martina Davis, Marianna Grossman, Drew Clark, Jim Davis and Jeff Risberg   | <i>Attributional and Consequential Life Cycle Assessment of Recycling Copper Slag as Building Material in Singapore</i><br>Harn-wei Kua |                      |                      |
|                            |             |             |             | 9:30-10:00   | <b>Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)</b>  |   |   |  |   |                      |                      |
|                            |             |             |             |  | <b>Environmentally Extended Input-Output Analysis</b>  | <b>Eco-Industrial Development and Industrial Symbiosis</b>  | <b>Life-cycle Methodology</b>   | <b>Industrial Ecology in Developing Countries</b>  | <b>Scenario Development and Analysis</b>  | <b>Biofuels</b>      |                      |
|                            |             |             |             |  | <b>Session Chair</b>   | <b>H. Scott Matthews</b>  | <b>Leenard Baas</b>   | <b>Angela Druckman</b>   | <b>Megha Shenoy</b>   | <b>Ruud Kempener</b> | <b>Thomas McKone</b> |
|                            | 1           | 10:00-10:15 |             |  | <i>Embodied Resource Flows in a Global Economy</i><br>Faye Duchin and Stephen Levine   | <i>A Behavioral Economics View of Industrial Symbiosis</i><br>Marian Chertow and Benjamin Beinecke  | <i>LCA-based Tool for Assessment of Co-processing in the Iron and Steel Industry</i><br>Carl O. Vadenbo, Michael E. Boesch and Stefanie Hellwig   | <i>Analyzing the Factors in Developing Industrial Symbioses: A Survey Study in China</i><br>Zhen Wang and Lei Shi  | <i>Spatial Distribution of US Industries and Implications for LCA</i><br>William Collinge, Melissa Bilec and Amy Landis                 |                      |                      |
|                            | 2           | 10:15-10:30 |             |  | <i>An Environmentally Extended Input-Output Carbon Calculator</i><br>Sergio Pacca, Sergio Vicente, Peter May and Chris Jones   | <i>A Practical Foundation for Sustainable Industrial Development – Minnesota's Experience</i><br>Timothy Nolan  | <i>Co-Product Treatment in LCAs of Agricultural Products: A Case Study of Commercial Beekeeping</i><br>Alissa Kendall, Juhong Yuan and Sonja Brodt  | <i>Life Cycle Assessment of Biomass-Derived Polyethylene</i><br>Masahiko Hirao, Yasunori Kikuchi, Kenji Narita, Eiji Sugiyama, Suelli Oliveira, Sonia Chapman, Rita M. Marzullo, Mariana M. Arakaki and Leonora M. Novais                | <i>Non-Price Material Scarcity Metrics</i><br>Nathan Fleming, Elisa Alonso, Frank Field, Randolph Kirchain and Richard Roth             |                      |                      |
| 3                          | 10:30-10:45 |             |             | <i>Comparing Resource Consumption in the US Economy for 1997 and 2002 via Eco-LCA: A Case Study on Biofuels</i><br>Erin Landers, Shweta Singh and Bhavik Bakshi  | <i>Factors Favoring Industrial Ecology Development in the Industrial Area Altamira-Tampico, México</i><br>Graciela Carrillo, Gemma Cervantes, Joaquin Figueroa, David Lule and Jenni Arce  | <i>Considering the Risk of Man-made Disaster in Life Cycle Assessment - A New Hybrid Inoperability Input-Output Method</i><br>Chen Lin  | <i>Organizational Forms and Likelihood of Industrial Symbiosis from the Perspective of Transaction Cost Economics</i><br>Han Shi  | <i>Infrastructures, Evolution and Industrial Ecology</i><br>Gerard Dijkema   |   |                      |                      |
| 4                          | 10:45-11:00 |             |             | <i>Steps Towards a Global Hybrid Database</i><br>Bo Weidema  | <i>Virtue in a Large Appetite for Raw Materials and Energy: The Cement Industry as an Ideal Driver of Industrial Ecosystems</i><br>Hendrik G. van Oss  | <i>Identifying Critical Supply-chain Paths that Drive the Change in CO2 Emissions in Japan</i><br>Yuko Oshita, Shigemori Kagawa, Keisuke Nansai and Suh Sangwon   | <i>Is there Really "Short Mental Distance" in Eco-industrial Networks?</i><br>Weslyne Ashton and Ariana Bain  | <i>Implementing Individual Producer Responsibility for Waste Electrical and Electronic Equipment in the EU through Improved Cost Allocation</i><br>Kieren Mayers, Karl Bodenhoferer and Luk van Wassenhove                               |   |                      |                      |
| 5                          | 11:00-11:15 |             |             | <i>Environmental Extended Input-Output Matrix of the Brazilian Economy</i><br>Moana Simas, Camila Franca, Bruna Vicente, Dominique Moutte and Sergio Pacca   | <i>Utilization of Geographic Information System (GIS) in a Local Industrial Symbiosis Development at Händevic-Malmölandet/Norrköping in Sweden</i><br>Saied Hatefpour, Leenard Baas, Mats Eklund and Åke Sivertun  | <i>A Framework for Temporal Discounting in Life Cycle Assessment</i><br>Qiang Zhai and Chris Yuan   | <i>Using Material Flow Analysis (MFA) to Assess the Potential for Recycling Expanded Polystyrene (EPS) in Bangalore: Strategies for its Economical Recycling</i><br>Loic Leray, Grishma Jain, Megha Shenoy and Suren Erkman | <i>Time-dependent PHEV Energy Consumption Estimation from National Travel Patterns</i><br>Jason MacDonald, Jarod Kelly and Greg Koeleian   |   |                      |                      |
| 6                          | 11:15-11:30 |             |             | <i>Applications of Input-Output Analysis in Industrial Ecology: A 10 Year Review from ISIE 2001 in Leiden to ISIE 2011 in Berkeley</i><br>Sangwon Suh  | <i>Industrial Symbiosis for Improving the CO2 Performance of Cement Production</i><br>Jonas Ammenberg, Mats Eklund, Roozbeh Feiz and Anton Helgstrand  | <i>The "CO2e-graph": An Environmental Tool for Guiding Urban Planning Processes. Application to the Public Space</i><br>Joan Manuel Mendoza, Jordi Oliver-Sola, Alejandro Josa, Alejandro P. Arena, Xavier Gabarrell, Alberto Moral, Laura Pablos, Nuria Garcia, Ruben Iusta and Joan Rieradevall | <i>Sustainable Industrial Development? Comparison of a Post-Industry Cluster in China and the Netherlands</i><br>Chang Yu and Gerard Dijkema  | <i>Evaluating Dynamic Factors that Affect Rare Earths Scarcity</i><br>Elisa Alonso, Andy Sherman, Timothy Wallington, Mark Everson, Frank Field, Richard Roth and Randolph Kirchain  |   |                      |                      |
|                            |             |             | 11:30-14:00 | <b>Lunch Break (Lunch at Dining Hall and Grand Court)</b>  |  |   |   |  |   |                      |                      |

|  |  | Track and Room |   |  |   |   |  |  |   |   |
|--|--|----------------|---|--|---|---|--|--|---|---|
| Day                                      | Session  | Slot           | Time  | 1 (Krutch Theater)   | 2 (Building 3 Main Lounge)  | 3 (Building 4 Main Lounge)  | 4 (Building 7 Main Lounge)   | 5 (Building 8 Main Lounge)   | 6 (Building 10 Garden Room)   |   |
| Thursday, June 9 (Afternoon and Evening) | 10   | Session Topic  |   | Environmentally Extended Input-Output Analysis   | Eco-Industrial Development and Industrial Symbiosis   | Sustainable Cities and Urban Metabolism   | Industrial Ecology in Developing Countries   | Scenario Development and Analysis  | Policy Intervention and Planning  |   |
|  |  | Session Chair  |   | Arnold Tukker  | Julian Allwood  | Paulo Ferrao  | Marian Chertow   | Gjalt Huppes   | Sergio Pacca  |   |
|  |  | 2              | 14:00-14:15   | <i>Integration of Life Cycle Inventory Data into Environmentally Extended Input-Output Model for Calculation of Material Flow Indicators: Results of the Eurostat project</i><br>Karl Schoer, Jan Kovanda, Jürgen Giegrich, Christoph Lauwigi, Axel Liebich, Jan Weinzettel and Stephan Moll | <i>Spatial Analysis of Life Cycle Stages of Recycling: Needs for and Optimization of Regional Recycling Networks</i><br>Xudong Chen, Tsuyoshi Fujita, Yoshitsugu Hayashi and Hirokazu Kato      | <i>Important Factors in the Energy History of Melbourne</i><br>Tim Baynes and Xuemei Bai  | <i>The Relevance of Eco Industrial Parks in Developing Countries</i><br>Anna Meyer, Michael Ruprecht and Guntram Glasbrenner   | <i>Linking Materials Flow Analysis with Environmental Impact Potential: Dynamic Consequences of Technology Transition on Projected E-waste in the U.S.</i><br>Carl Lam, Seong-Rin Lim and Julie Schoenung              | <i>Assessment of Techno-Economic Potentials for Low-Carbon Product Policies</i><br>Eric Masanet   |   |
|  |  | 3              | 14:15-14:30   | <i>Detecting a Scarcity Metal Trade Network Essential to Japanese Economy with a Global Link Input-Output Model</i><br>Keisuke Nansai, Kenichi Nakajima, Shigemi Kagawa, Yasushi Kondo and Sangwon Suh   | <i>Thermoeconomics as a Tool for a Fair Product Cost Allocation in Industrial Symbiosis</i><br>Antonio Valero, Sergio Uson, Cesar Torres and Alicia Valero                                      | <i>Energy and Carbon Footprint of the Residential Building Stock, Norway 1960-2050: Trends and Critical Variables</i><br>Helge Brattebe, Nina Sandberg and Igor Sartori   | <i>Regional Material Flow And Life Cycle Analysis of Cement Manufacturing in India</i><br>Andrea Solis, Anu Ramaswami and Stephan Durham   | <i>Developing a Framework for Transparent Green Building Rating Systems</i><br>Nils Brandt, Hossein Shahrokni and Ronald Wennersten  | <i>ToSIA – A Tool for Sustainability Impact Assessment, applied to Forest-Wood-Chains</i><br>Tommi Suominen, Marcus Lindner, Diana Vötter, Irina Prokofieva, Bernhard Wolfslehner, Filip Aggestam, Martina Roubalova and Petr Kneblík |   |
|  |  | 4              | 14:30-14:45   | <i>The Raw Material Equivalents of Austria's Trade: Input-Output Approaches</i><br>Anke Schaffartzik and Nina Eisenmenger  | <i>Material Efficiency for Steel and Aluminium</i><br>Julian Allwood  | <i>Self-sustainability and Urban Material Stocks in Lisbon Metropolitan Area</i><br>Samuel Niza, Leonardo Rosado, Inês Costa, Daniel Wiesmann, António Lorena, David Quim and Paulo Ferrão                            | <i>Expanding Material Flow Analysis Data into Life Cycle Inventories: Cases from the Silk and Cotton Textile Industry, Pig Iron Industry and Paper Industry in India</i><br>Laure Müller, Mariane Schneider, Megha Shenoy and Suren Erkman | <i>Life Cycle Analysis of Brazilian Sugar Cane and Cellulosic Ethanol Production and its Use in Passenger Light Vehicle Fleets in Brazil and Japan</i><br>Joana Portugal, Kiyo Kurisu, Jun Nakatani and Keisuke Hanaki | <i>Dissipative Copper Releases in the United States</i><br>Matthew Eckelman, Ermelinda Harper, Zeke Hausfather and Reid Lifset  |   |
|  | 5  | 14:45-15:00    | <i>Substance Flow Analysis on the Tramp Elements Associated with Iron and Steel Scraps Based on WIO-MFA Model</i><br>Hajime Ohno, Kazuyo Matsubae, Kenichi Nakajima, Shinichiro Nakamura and Tetsuya Nagasaka | <i>Eco-innovation of a Paper Mill through Industrial Symbiosis in Ulsan Eco-industrial Park Initiative</i><br>Hung-Suck Park, Shishir Kumar Behera, Seok-Hee Kim, Jung-Hoon Kim, and Sang-Yoon Lee   | <i>Mining the "Invisible City" - Prospecting for Metal Resources in the Urban Infrastructure of Norrköping</i><br>Per Frändegård, Björn Berglund, Annica Carlsson, Mats Eklund and Joakim Krook | <i>Applying Material Flow Analysis (MFA) to Improve Energy Efficiency, Water Recycling and Provide a Life Cycle Inventory of the Silk Reeling Sector in South India</i><br>Lokanath S, Rashmi Kumari and Megha Shenoy | <i>Going from a Smart Grid to a Smart City</i><br>Nils Brandt, Louise Arman, Stefan Johansson, Hossein Shahrokni, Kristin Fahberg and Ronald Wennersten  | <i>U.S. Agricultural Phosphorus Use-Efficiency and the Impact of Potential Efficiency Improvement Techniques</i><br>Scott Yee and Sangwon Suh  |   |   |
|  | 15:00-15:30 Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)               |                |   |  |   |   |  |  |   |   |
|  | 11   | Session Topic  |   | Sustainable Water Systems  |   |   | Energy Systems   |  | Scenario Development and Analysis   | Footprint Analysis, Reporting and Communication   |
|  |  | Session Chair  |   | Stephan Pfister  |   |   | Matthias Finkbeiner  |  | Eric Masanet  | Gjalt Huppes  |
|  |  | 1              | 15:30-15:45   | <i>Water Footprint of Urban Energy Systems: A Case Study of Denver, Colorado</i><br>Elliot Cohen and Anu Ramaswami   |   |   | <i>Effect of Change of Forest Carbon Storage on Net CO2 Balance of Wood Use for Energy in Japan</i><br>Chihiro Kayo, Toshiya Aramaki and Keisuke Hanaki  |  | <i>Estimating Impacts of Driving Patterns on the Environmental Performance of Plug-in Hybrid Vehicles</i><br>Leon Raykin, Heather L. MacLean and Matthew J. Roorda  | <i>Ecological, Water and Carbon Footprints Calculated by a Multi-regional Input-Output Model – Framework and Data Integration</i><br>Kjartan Steen-Olsen, Jan Weinzettel, Troy Hawkins, Thomas Wiedmann, Alessandro Galli, Brad Ewing, Ertug Ercin and Edgar Hertwich |
|  |  | 2              | 15:45-16:00   | <i>The Metabolism of Urban Water Services</i><br>Helge Brattebe, Venkatesh G., Sveinung Sægvog and Zoran Kapelan   |   |   | <i>Geographical Delimitation for Carbon Footprint Modeling in the Global Paper Industry</i><br>Robert Vos and Joshua Newell  |  | <i>Action Research for Waste Management: Applying Critical Theory to Complex Systems</i><br>Graham Aid and Nils Brandt  | <i>Stakeholder Driven PCR Development to Accelerate Industry-Wide Life Cycle Management of Product Supply Chains: The Case of Home &amp; Personal Care Products</i><br>Vee Subramanian, Georg Schoener, Joby Carlson and Kevin Dooley                                 |
|  |  | 3              | 16:00-16:15   | <i>The Importance of Origin and Timing of Water Use for Impact Assessment in Semi-arid Areas: The Example of Mandarin Production in a Coastal Area in Peru</i><br>Francesca Veronesi, Stephan Pfister, Karin Bartl and Stefanie Hellweg  |   |   | <i>Opportunities for Utilizing Oil Sands Coke: Technological, Environmental and Financial Implications</i><br>Jennifer McKellar, Jole Bergerson, Janne Kettunen and Heather MacLean  |  | <i>Direct Energy Consumption of the Chinese Passenger Car Stock until 2050 – The Impact of Technology and Lifestyle</i><br>Daniel Müller, Stefan Pauliuk and Ni Made Dhaniati   | <i>What are the Rules for Biogenic Carbon Accounting?</i><br>Eric Johnson   |
|  | 4  | 16:15-16:30    | <i>Indicators for Assessing Water Effects of Bioenergy on Different Scales</i><br>Sonia Yeh, Gouri Mishra, Goran Berndes, Suhas Wani, Sangwon Suh, Andre Elia Neto and Jacob Teter                            |  |   | <i>Developing Cost- and Greenhouse Gas-Optimal Public Transit Networks</i><br>Julia Griswold, Samer Madanat and Arpad Horvath   |  | <i>The Computational Structure of Material Flow Cost Accounting</i><br>Andreas Moeller, Martina Prox, Mario Schmidt and Tobias Viere   | <i>Is My Eco-Industrial Park Greener Than Yours? The State of EIP Performance Measurement</i><br>Tracy Casavant, Joy Chen, Katelyn Harris and Sandy Oh  |   |
|  | 16:30-18:00 Poster Session with Reception (Building 14, Rooms 102, 104 and Krutch Theater) |                |   |  |   |   |  |  |   |   |

| Day                       | Session | Slot                 | Time  | Track and Room  |   |   |  |   |                                     |  |
|---------------------------|---------|----------------------|---|---|---|---|--|---|-------------------------------------|--|
|                           |         |                      |   | 1 (Krutch Theater)  | 2 (Building 3 Main Lounge)  | 3 (Building 4 Main Lounge)  | 4 (Building 7 Main Lounge)   | 5 (Building 8 Main Lounge)  | 6 (Building 10 Garden Room)         |  |
| Friday, June 10 (Morning) |         |                      |   | <b>1 (Krutch Theater)</b>   | <b>2 (Building 3 Main Lounge)</b>   | <b>3 (Building 4 Main Lounge)</b>   | <b>4 (Building 7 Main Lounge)</b>  | <b>5 (Building 8 Main Lounge)</b>   | <b>6 (Building 10 Garden Room)</b>  |  |
|                           |         | <b>Session Topic</b> |   | <b>Complex Systems and Agent Modeling</b>   | <b>Policy Intervention and Planning</b>   | <b>Sustainable Cities and Urban Metabolism</b>  | <b>Alternative Fuels</b>   | <b>Scenario Development and Analysis</b>  | <b>Transportation and Logistics</b> |  |
|                           |         | <b>Session Chair</b> |   | <b>Ruud Kempener</b>  | <b>Clint Andrews</b>  | <b>Paulo Ferrao</b>   | <b>Sabrina Spatari</b>   | <b>Nicholas Santero</b>   | <b>Mikhail Chester</b>              |  |
|                           | 1       | 8:15-8:30            | <i>Heating and Cooling Energy Balance of an Urban Building Stock</i><br><br>David N Bristow and Christopher A Kennedy   | <i>Policy Relevant Network Approaches for Industrial Ecology</i><br><br>Frank Schiller, Alex Penn, Angela Druckman, Lauren Basson and Amy Woodward  | <i>Spatially Resolved Urban Material Consumption in the Residential Sector</i><br><br>Daniel Wiesmann, Leonardo Rosado, Samuel Niza, Ines Azevedo, Paulo Ferrao and John Fernandez                                | <i>Analyzing the Optimal Use of Biomass to Provide Regional Energy Services in the United States</i><br><br>Aranya Venkatesh, Kimberley Mullins and Amy Nengast   | <i>What is Best for the Climate - Refurbishment or Replacement of Buildings?</i><br><br>Anne Roenning and Mie Vold   | <i>Potential Reductions in Greenhouse Gas Emissions from Maritime Transport by Shipping at Lower Speeds</i><br><br>Haakon Lindstad, Bjørn Egil Asbjørnslett and Anders H. Strømman  |                                     |  |
|                           | 2       | 8:30-8:45            | <i>Resilience of Industrial Symbiosis</i><br><br>Junming Zhu  | <i>Environmental History and Material Flow Analysis - Pointing at Environmental Damage Accumulation Using Material Flow Analysis</i><br><br>Marcio Gama   | <i>Accounting and modeling building stocks for the Lisbon Metropolitan Area</i><br><br>Antonio Lorena, David Figueiredo, Daniel Wiesmann and Samuel Niza  | <i>Forest Bioenergy or Forest Carbon? Assessing Trade-offs in Greenhouse Gas Mitigation with Wood-based Fuels</i><br><br>Heather MacLean, Jon McKechnie and Steve Colombo   | <i>Industrial Symbiosis: Towards Locally Optimal Solutions</i><br><br>Guillaume Massard and Suren Erkman   | <i>Life Cycle Environmental Assessment of Lithium-ion and Nickel Metal Hydride Batteries for Plug-in Hybrid and Battery Electric Vehicles</i><br><br>Guillaume Majeau-Bettez, Troy R. Hawkins and Anders Hammer Strømman                            |                                     |  |
|                           | 3       | 8:45-9:00            | <i>Uncovering General Patterns in EIPs from the Complex Network Perspective</i><br><br>Lei Shi and Haijia Shi   | <i>The Governance of Industrial Symbiosis</i><br><br>Wouter Spekkink and Frank Boons  | <i>Regional and Temporal Disparities in the Available Amount of and the Need for Mineral Recycled Aggregate in the Building Sector</i><br><br>Georg Schiller, Clemens Delmann and Jan Reichenbach                 | <i>Exergy-based Eco-efficiency of Biofuels in the Anthropocene</i><br><br>Wenjie Liao, Reinout Heijungs and Gjalit Huppes   | <i>Cost Effective Recycling System Utilizing Unused Local Resources and Facilities</i><br><br>Minoru Fujii, Tsuyoshi Fujita, Xudong Chen and Satoshi Ohnishi   | <i>Environmental Assessment of Plug-in Hybrid Electric Vehicles Using Naturalistic Drive Cycle and Usage Pattern Information</i><br><br>Brandon M. Marshall, Jarod C. Kelly, Gregory A. Keoleian, T. Lee, and Z. Filipi                             |                                     |  |
|                           | 4       | 9:00-9:15            | <i>A Methodological Framework for Designing an Industrial Symbiosis-Modeled Configuration of Forest Biorefinery</i><br><br>Anthony Halog and Najet Bichraoui                                  | <i>Analyzing Industrial Symbiosis as a Policy Tool for Environmental Efficiency among Firms</i><br><br>Raymond Paquin, Suzanne Tillemann and Timo Busch   | <i>Re-examining the Life Cycle Energy of Residences: Scope, Scaling and Dynamics</i><br><br>Eric Williams, Stephane Frijia and Subhrajit Guhakhurta   | <i>What are the Environmentally Optimal Uses of Different Biomass Feedstocks - Heating, Electricity Generation or Transportation?</i><br><br>Bernhard Steubing, Juergen Reinhard, Rainer Zah and Christian Ludwig | <i>Substance Flow Analysis of Novel Compounds: The Case of Graphene</i><br><br>Rickard Arvidsson, Sverker Molander and Björn A. Sandén   | <i>Transportation and Environmental Benefits of Developing Unutilized Industrial Sites: Brownfields</i><br><br>Yeganeh Mashayekh, Chris Hendrickson, Scott Matthews and Deborah Lange   |                                     |  |
|                           | 5       | 9:15-9:30            | <i>Agent-based Modeling of Metal Metabolisms</i><br><br>L. Andrew Bollinger, Sathyan Sheoratan and Igor Nikolic   | <i>Environmental Regulations Should be Based on Integrated Modeling and Scenario Analysis Rather than on Life Cycle Analysis</i><br><br>Richard Plevin and Mark Delucchi  | <i>Dynamic Modeling of Singapore's Urban Metabolism: Historical Trends and Sustainable Scenario Development</i><br><br>Tamas Abou-Abdo, Noel R. Davis, Karen N. Welling, Jonathan S. Krones and John E. Fernandez | <i>Life Cycle Assessment of Algae-to-Energy Technologies</i><br><br>Andres Clares, Eleazar Resurreccion and Lisa Colosi   | <i>From Environmental Concerns towards Sustainable Food Provisioning</i><br><br>Helmi Risku-Norja  | <i>Energy, Emissions, and Cost Tradeoffs of Potential US Modal Freight Policies</i><br><br>Rachael Nealer   |                                     |  |
|                           |         | 9:30-10:00           | <b>Coffee Break (Building 14 Hallway, Ginko Court, and Grand Court)</b>   |   |   |   |  |   |                                     |  |
|                           |         | <b>Session Topic</b> |   | <b>Life-cycle Management &amp; Organization of Product Chains</b>   | <b>Policy Intervention and Planning</b>   | <b>Sustainable Cities and Urban Metabolism</b>  | <b>Energy Systems</b>  | <b>Managing End-of-Life Products</b>  | <b>Transportation and Logistics</b> |  |
|                           |         | <b>Session Chair</b> |   | <b>Frank Boons</b>  | <b>Deepak Sivaraman</b>   | <b>Christopher Kennedy</b>  | <b>Sabrina Spatari</b>   | <b>Eric Williams</b>  | <b>Heather MacLean</b>              |  |
|                           | 1       | 10:00-10:15          | <i>Sustainable Development Information Flows along Product Chains at Eka Chemicals</i><br><br>Ulrika Palme, Henrikke Baumann, Karin Andersson Hallden, Johanna Martinsson and Sofia Petersson | <i>Analyzing the Environmental Impacts from Residential Brownfield and Greenfield Developments</i><br><br>Amy Nagengast   | <i>The Work Done by Cities: A Definition of the Thermodynamically Sustainable City</i><br><br>David N Bristow and Christopher A Kennedy   | <i>When Does it Pay to Electrify Auto-mobility?</i><br><br>Renato Orsato and Vered Doctori Blass  | <i>Identifying Critical Metals for Resource Strategies and Assessing Recycling Effectiveness and Efficiency: Methodology and Case Studies</i><br><br>Slefan Goessling-Reisemann, Viktor Knobloch and Bernhard Cebulla                                  | <i>Global Transportation Roadmap</i><br><br>Cristiano Facanha   |                                     |  |
|                           | 2       | 10:15-10:30          | <i>Environmental Management in Transnational Product Chains: The Case of a Danish Pesticide Company in Brazil</i><br><br>Michael Soegaard Joergensen, Bruno Milanez and Marcelo Firpo         | <i>Sustainability Analysis of Redeveloped Brownfields</i><br><br>Thomas Brecheisen, Thomas Theis, Susan Kaplan and Chris DeSouza  | <i>Urban Configuration, Energy Performance and Material Intensity of Neighbourhoods</i><br><br>David Quinn and Juan Jose Sarraide   | <i>Environmental Impacts of Natural Gas from the Marcellus Shale</i><br><br>Alexander Dale, Melissa Bilec and Radisav Vidic   | <i>Fate of Metals and Brominated Flame Retardants Contained in WEEE: Behaviors and Substance Flows in a Municipal Waste Treatment Process</i><br><br>Masahiro Oguchi, Hirofumi Sakanakura, Atsushi Terazono and Hidetaka Takigami                      | <i>Life Cycle Assessment and Life Cycle Costing of Bioenergy Applications for Light-duty Transportation</i><br><br>Jason Luk, Sylvia Sleep and Heather MacLean  |                                     |  |
|                           | 3       | 10:30-10:45          | <i>Touring a Facility in Your Pajamas: Industrial Ecology in Second Life</i><br><br>Matthew Eckelman and Reid Lifset  | <i>Regulatory Potential for Increasing Small Scale Grid Connected Photovoltaic (PV) Deployment in Australia</i><br><br>Deepak Sivaraman and Ralph E. Horne  | <i>Spatial and Socio-economic Drivers of Direct and Indirect Household Energy Requirements in Australia</i><br><br>Dominik Wiednerhofer, Manfred Lenzen and Julia K. Steinberger                                  | <i>U.S. Electricity Infrastructure Flow Analysis: How Fast Must We Build?</i><br><br>Catherine Izard, Constantine Samaras, Ines Azevedo, H. Scott Matthews and Chris Hendrickson                                  | <i>Life Cycle Inventories for CNT Applications</i><br><br>Jackie Isaacs, Christopher Bosso and Ali Hakimian  | <i>Plug-in Hybrid Electric Vehicle Charging Policy Optimization Using Particle Swarms</i><br><br>Hosam Fathy, Jarod Kelly, Saeid Bashash and Gregory Keoleian   |                                     |  |
|                           | 4       | 10:45-11:00          | <i>Waste Lubricant Oils in the Azores Islands: Creating a Resource Recovery Network through Collaborative Action</i><br><br>Ines Costa, Pedro Nazareth and Paulo Ferrao                       | <i>Waste Prevention Policies as Transition Approach towards Sustainable Resource Management</i><br><br>Henning Wilts  | <i>The Impact of Density, Urban Structure and Income on Carbon Consumption</i><br><br>Jukka Heinonen and Seppo Junnila  | <i>Incorporating Biodiversity Impacts into Environmental Life Cycle Assessment of Forest based Bioethanol Production</i><br><br>Binod Neupane and Anthony Halog   | <i>Distribution Ratio of Alloying Elements on Remelting Process of Light Metals by Thermodynamic Analysis</i><br><br>Takehito Hiraki, Osamu Takeda, Kenichi Nakajima, Kazuyo Matsubae, Takahiro Miki, Shinichiro Nakamura, Xin Lu and Tetsuya Nagasaka | <i>Not All Electric Vehicles are Green: Regional Differences in Greenhouse Gas Emissions Associated with EV Fleets</i><br><br>Lynette Cheah, Jeremy Gregory, Richard Roth, Randolph Kirchain, Luis Dias and Fausto Freire                           |                                     |  |
|                           | 5       | 11:00-11:15          | <i>Material Diversity Metrics for Sustainable Product Systems</i><br><br>Erinn Ryan and Callie Babbitt  | <i>Feasibility of Using the Ecological Footprint in the Flemish Regional Environmental Policy Context</i><br><br>Theo Geerken, Veronique van Hoof, An Vercauteren, Ann Van der Linden, Thibault d'Ursel and Dirk Cleymans | <i>Exploring High-resolution Urban Resource Demands with Activity-based Modelling</i><br><br>James Keirstead and Aruna Sivakumar  | <i>Implications of the European Renewable Energy Directive for Industrial Symbiosis in the Biofuel Industry</i><br><br>Michael Martin, Nicas Svensson and Mats Eklund   | <i>Management of Scrap Mixed Metal in Japan</i><br><br>Atsushi Terazono and Aya Yoshida  | <i>Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions and Life-cycle Cost</i><br><br>Elizabeth Traut, Chris Hendrickson, Erica Klampff, Yimin Liu and Jeremy Michalek |                                     |  |
|                           | 6       | 11:15-11:30          | <i>System Design and Feasibility of Resource Recovery from Wastewater</i><br><br>Murray Hall and Tony Priestley   | <i>Developing an Inter-Disciplinary Graduate Curriculum on Sustainable City Systems using a Social-Ecological-Infrastructural Systems Framework</i><br><br>Anu Ramaswami, Chris Weible, Tanya Heikkila and Deborah Main   | <i>Economic Development and Water Requirements in Beijing</i><br><br>Laddaphone Banchoonphanith and Shinji Kaneko   | <i>Estimating U.S. University Energy and Carbon Footprints and Benchmarking Voluntarily Reported Data</i><br><br>H. Scott Matthews and Rachna Sharma  | <i>A Methodology to Quantify the Flow of Used Personal Computers between North America and the Rest of the World: Canada Export MFA and India Import MFA Case Studies</i><br><br>Soumya Poduri, Ramzy Kahhat and Eric Williams                         | <i>Geospatial Intermodal Freight Transportation Modeling</i><br><br>James J. Corbett, James J. Winebrake, Arindam Ghosh, J. Scott Hawker, Karl Korfmaier, Earl Lee and Jordan Silberman   |                                     |  |
|                           |         | 11:30-14:00          | <b>Lunch Break (Lunch at Dining Hall and Grand Court)</b>   |   |   |   |  |   |                                     |  |

|                             |         | Track and Room |   |  |   |   |   |  |   |
|-----------------------------|---------|----------------|---|--|---|---|---|--|---|
| Day                         | Session | Slot           | Time  | 1 (Krutch Theater)   | 2 (Building 3 Main Lounge)  | 3 (Building 4 Main Lounge)  | 4 (Building 7 Main Lounge)  | 5 (Building 8 Main Lounge)   | 6 (Building 10 Garden Room)   |
| Friday, June 10 (Afternoon) | 14      | Session Topic  |   | Sustainable Water Systems  | Policy Intervention and Planning  | Sustainable Consumption and Behavior  | Energy Systems  | Managing End-of-Life Products  | Transportation and Logistics  |
|                             |         | Session Chair  |   | Corinne Scown  | Gregory Keoleian  | Barbara Karn  | Deepak Sivaraman  | Kieren Mayers  | Heather MacLean   |
|                             |         | 1              | 14:00-14:15   | <i>Water Management in Swiss Agriculture – Life Cycle Impact Assessment under Climate Change</i><br>Danielle Tendall, Stephan Pfister, Ruth Freiermuth Knuchel, Stefanie Hellweg and Gerard Gaillard | <i>The Evolution of Facilitated Industrial Symbiosis</i><br>Raymond Paquin and Jennifer Howard-Grenville  | <i>Cross-national Comparison of Lifespan Distribution of Durable Goods</i><br>Masahiro Oguchi and Masaaki Fuse  | <i>China's Resource Use and its Relation to Economic Growth in the Period of 2000-2007: A Decoupling Analysis</i><br>Heming Wang, Qiang Yue, Zhongwu Lu, Seiji Hashimoto and Yuichi Moriguchi | <i>Adoption, End-of-life Processing and Exportation of Used Computers in Mexico</i><br>Ramzy Kahhat, Eric Williams, Soumya Poduri and Jesus Estrada  | <i>Infrastructure's Contribution to the Footprint of Transportation Fuels</i><br>Bret Strogen and Arpad Horvath                             |
|                             |         | 2              | 14:15-14:30   | <i>Defining and Quantifying Sustainable Endowments of Blue Water</i><br>Carlos Lopez-Morales   | <i>Modeling the Effects of Energy Efficiency Improvements on Life Cycle Greenhouse Gas Emissions of Products and in Determining Policy Effectiveness</i><br>Derrick Carlson | <i>Consumers' Preference Assessment for Environmental Labeling and Recycling Collection Scheme of Plastic Food Containers Usina Choice Experiments</i><br>Jun Nakatani, Takayuki Ishino, Kiyo Kurisu and Keisuke Hanaki | <i>Organic Waste towards Industrial Feedstocks: Fischer-Tropsch Synthesis (FTS)</i><br>Philip Nuss  | <i>Mapping Flows of Business Electrical and Electronic Equipment at End-of Life in the EU</i><br>Richard Peagam, Kirstie McIntyre, Lauren Basson and Chris France                              | <i>Modeling Urban Passenger Transportation Depending on Urban Planning and Infrastructure Choices</i><br>Markus Heinz and Julia Steinberger |
|                             |         | 3              | 14:30-14:45   | <i>Water Implications of Transportation Fuels</i><br>Corinne Scown, Arpad Horvath and Thomas McKone  | <i>What Drives Resource Productivity Across Chinese Provinces?</i><br>Han Shi   | <i>Social Change and Consumption: A Review of 60 Years of Social and Economic Architecture and the Shaping of Modern Consumption</i><br>Liana Williams, Hitomi Nakanishi and Heinz Schandl                              | <i>A Software Tool to Evaluate Emerging Carbon Capture Technologies</i><br>Matthew Ceh and Joule Bergerson  | <i>The WEEE Laws: An International Comparison</i><br>Panate Manomaiwibool  | <i>Energy Efficiency versus Gains in Consumer Amenities - Examples from Passenger Cars in Sweden</i><br>Frances Sprei                       |
|                             | 4       | 14:45-15:00    | <i>Global Agricultural Water Use and Application Technologies: A MRIO Scenario Analysis</i><br>Nathaniel Springer | <i>From Sector Development to Integrated Environmental Policies: A Norwegian Case Study</i><br>Hilde Opoku   | <i>Efficiency, Sufficiency and Growth</i><br>Julia Steinberger  | <i>Life Cycle Assessment of Sugarcane Ethanol and Palm Oil Biodiesel Joint Production</i><br>Simone Pereira de Souza, Sergio A. Pacca, Marcio Turra Avila and Claudinei Andreoli  | <i>Economic and Environmental Assessment of Refurbishing Strategies for Product-Service Bundles</i><br>Anton Ovchinnikov, Vered Doctori Blass and Gal Raz                                     | <i>Energy and Carbon Dioxide Impacts from Lean Logistics and Retailing: A Discrete-Continuous Simulation Approach for the Consumer Goods Industry</i><br>Gustavo Marco Antonio Ugarte Irizarri |   |
|                             |         |                | 15:00-15:15   | <b>Coffee Break (Building 14 Hallway and Ginko Court)</b>  |   |   |   |  |   |
|                             |         | 15:15-16:15    | <b>Closing Session (Building 14, Krutch Theater)</b>  |  |   |   |   |  |   |