1. Conference information:

EcoDesign 2015 is the 9th International Symposium on Environmentally Conscious Design and Inverse Manufacturing. The program began in 1999 and was held as a biennial conference. The purpose of EcoDesign 2015 is to bring together worldwide professionals interested in advancing the state of the art in EcoDesign for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. This year, the key topics include the global issues on eco-design, energy sustainability, critical resource circulation, remanufacturing and revivals of eco-design of products and their life cycles. Moreover, there are 204 distinguished presentations delivered by the participants from 26 countries all over the world.

2. Conference schedule

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<th>DAY</th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>EVENING</th>
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<tbody>
<tr>
<td>1</td>
<td>2nd Dec 2015</td>
<td>Opening</td>
<td>Presentation session</td>
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<td>Plenary keynote 1 &amp; 2</td>
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<td>2</td>
<td>3rd Dec 2015</td>
<td>Presentation session</td>
<td>Poster session</td>
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<td>Presentation session</td>
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<td></td>
<td>Plenary keynote 3&amp;4</td>
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<td>3</td>
<td>4th Dec 2015</td>
<td>Presentation session</td>
<td>Presentation session</td>
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<td>Closing &amp; Award</td>
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3. Topics

Under the four themes of (1) Social Perspectives in EcoDesign, (2) Product Life Cycle Design and Business Strategy, (3) Sustainability Assessment and Incentives for EcoDesign, and (4) Sustainable Manufacturing and EOL Management, the programme can be divided into three sections.

- **Plenary session** with four keynote speakers
- **Oral presentations** having 44 sessions consisting of 162 topics
- **Poster presentation** having 38 posters in total

Note: more details can be found at http://ecodenet.com/ed2015/eng/program/ProgramGlance.pdf

4. Key messages from plenary keynotes

**Hugo Schally** (Head of Unit, Directorate General “Environment”, “Eco-innovation and circular economy” at European Commission)

**Topic: EU policy development on eco-innovation and circular economy**

>> On 4th Dec 2015, EU has just adopted a circular economy package having EU action plan which aims to closing the loop of product lifecycle. Higher degree of recycling and re-use efforts is emphasized along with the revised legislative proposals on waste.
Dr. Rolf Steinhilper (Full Professor for Manufacturing and Remanufacturing Technology, Fraunhofer Group Leader, University of Bayreuth, Germany)  
**Topic: Technology trends and challenges of remanufacturing**  
>> Eight challenges are highlighted as (1) communication, (2) CO₂ reduction, (3) complexity management/core handling, (4) computerization, (5) competition remanufactured vs new, (6) car service, (7) cleaning engineering, and (8) connected drive/autonomous vehicles.

Kiyoto Furuta (Senior General Manager of the Global Environment Center, Canon Inc., Japan)  
**Topic: Canon Environmental Activities & Approach on a new information transfer scheme chemSHERPA for chemicals in products**  
>> In order to establish a single standard system for the chemicals in products for electrotechnical industry, Canon Inc. joined hands with stakeholders and the two-year efforts has yielded as chemSERPA web-based supporting tools.  
*Note: more information at https://chemsherpa.net/chemSHERPA/english/*

John Disharoon (Director of Market Access for Caterpillar Remanufacturing, Components and Work Tools Division, Caterpillar Inc., USA)  
**Topic: Caterpillar remanufacturing: The business of sustainable development**  
>> The initial design is a key success for the multiple product lifecycle. Caterpillar remanufacturing machines demonstrated the significant materials and energy saving (70-85%) comparing to newly produced machines. The business model with good supply-chain and core management allows >95% machine re-collection and recycle. Cleaning and salvage also play key roles.

5. **Academic contribution**

**Conference proceeding paper**


Amongst the main four topics in the EcoDesign 2015 conference, a topic of 'Social Perspectives in EcoDesign' has a sub-topic on the 'Energy Management and New Energy Technologies' which fits well with my research on the perovskite solar cell (PSC). As I have been involved with the lab experiments on PSC during the past few months, there are substantial results that can have an academic contribution. Thus, this conference is a good platform to deliver the recent experimental results, especially on the deposition process, as well as the remaining technical challenges for this technology. Moreover, the advancements of perovskite research and the environmental impacts from different deposition approaches were reviewed. The main idea of the presentation is to discuss whether PSC is the next promising technology for photovoltaic industry. Moreover, the conference allowed me to dive into various topics. Despite diverse academic disciplines, I really enjoyed and obtained new perspectives from the keynotes and 30 other presentations within these three days.
Figure 1  Plenary Keynote 4 - John Disharoon, Caterpillar Inc. USA

Figure 2  Prof. Takashi Iwamoto (Keio Business School) presented his research with a topic of "Development of Low-Carbon Society Businesses in Japan"

Figure 3  My presentation "Perovskite Solar Cells: The Next Promising Technology? on Friday 4 Dec 2015" (Photo credit: Warathida Chaiyapa)