



The Centre for Sustainable Design®

## Sustainable Innovation 2011

'State of the Art'

Sustainable Innovation & Design

Towards Sustainable Product Design: 16th International Conference

24 & 25 October 2011

Farnham Castle, Farnham, UK

### Supported by

Institute of Environmental  
Management & Assessment

**iema**

INSTITUTE OF ENVIRONMENTAL  
MANAGEMENT & ASSESSMENT

### Media partner

DEVELOP3D

**Sustainability**  
Technology for green product development

### Mark Barthel

Head of Design, WRAP, UK

### Lawrence Bloom

Chairman, Hanwang Group, China/Switzerland

### Dr Louis Brimacombe

Head, Environmental Technology, Tata Steel  
Group, UK

### Steve Bushnell

Environmental Affairs Manager, Corporate  
Environmental Affairs, IBM, UK

### Martin Charter

Director, The Centre for Sustainable Design,  
University for the Creative Arts, UK

### Colin Courtney

Director, Green Construction, Skanska AB, UK

### David Eades

Presenter, BBC World News, UK

### Mark Griffiths

Partner, SecondNature, UK

### Oliver Heath

Director, Heath Design Ltd, UK

### Andrew Jenkins

Sustainable Development Manager – Products,  
Boots, UK

### Sarah Krasley

Product Manager – Sustainability, Manufacturing  
Division, Autodesk Inc, US

### Michael Kuhndt

Head of Centre, UNEP/Wuppertal Institute  
Collaborating Centre on Sustainable Consumption  
and Production (CSCP), Germany

### Bas de Leeuw

Managing Director, World Resources Forum,  
Switzerland

### Tomoo Machiba

Senior Consultant, Organisation of Economic,  
Cooperation & Development (OECD), France

### Shaun McCarthy

Director, Action Sustainability, UK

### Michal Miedzinski

Senior Consultant, Technopolis, Belgium

### Dr Richard Miller

Head of Sustainability, Technology Strategy Board  
(TSB), UK

### Professor Kerstin Mey

Director, Research and Enterprise, University  
for the Creative Arts, UK

### Dr Jamie O'Hare

Senior Consultant, Granta Design, UK

### Jacquie Ottman

Founder and CEO, J. Ottman Consulting, US

### Reed Paget

CEO, One Earth Innovation, UK

### Bruce Piasecki

President & Founder, AHC Group Inc, US

### Professor Robin Roy

Department of Design, Development, Environment  
& Materials, The Open University, UK

### Professor Fred Steward

Policy Studies Institute, UK

### James Sweet

Commercial Director, C4Ci, UK

### Trudy Thompson

Founder, Bricks and Bread, UK

### Dr Peter Wells

Cardiff Business School, Cardiff University,  
Wales, UK

### Martin Willers

Co-founder, PEOPLE PEOPLE, Sweden

An initiative of

**UCA**  
university for the creative arts

**Contents**

**Advancing Sustainable Product Development Through Life Cycle Thinking - Leyla Acaroglu, Tim Grant..... 5**

**Innovative Life Cycle EcoDesign - Cecilia Askham, Andreas Brekke, Steinar Normann, Synnøve Rubach, Anne R. Rønning ..... 13**

**Creating Sustainable Solutions with the Application of Natural Phenomena in Product Design: Organic and Fractal Theories - Marcus Bertapelli ..... 19**

**DuPont Corian: Developing a More Sustainable Exterior Cladding - Eur Ing Dr Lyndon Buck, Philip Hutfield ..... 23**

**Backdrop to Sustainable Innovation 2011 - Martin Charter ..... 32**

**Nest Readapting a Domestic Landscape - Carlos Sousa Casimiro da Costa, Professor Dr. Antonio Augusto Fernandes, Professor Dr. Henrique Fabião..... 35**

**Aesthetic Design for Minimum Weight: New Approaches for Sustainable Vehicle Development - M. Fickel, P. D. Ewing..... 44**

**Purchasing Behavior - ‘Having Material Possessions’ or ‘Having Communication’ - Jun Fujimoto, Dean Poland..... 45**

**Adjustable Agricultural Sprays in Cross Winds - Dibyadarshi Ghosh, Nitish Chauhan, Dr. Satyajit Ghosh ..... 51**

**Social Innovation Sydney – Creating an Open Platform for Change Makers - Selena Griffith, Kate Carruthers, Michelle Williams ..... 62**

**Tesco - Re-use New Business Model - Mark Griffiths ..... 69**

**Sustainable Design for Grass Roots Craft Production in Eastern Turkey - Hazal Gumus, Professor Stuart Walker..... 70**

**The Question is not “How Can We” Create Sustainable Lifestyles, It’s “How Do We” Do It, on a Scale and for a Duration to Realize Necessary Change - Oliver Heath ..... 71**

**Design and Optimisation of a User-Engaged System for Sustainable Fashion - Eunsuk Hur, Dr Katharine Beverley ..... 72**

**How Responsible should/could an Apparel Designer be? - Clare Hussey, Pammi Sinha ..... 80**

**From Mass to Niche Market: Strategies for Sustainable Consumption - Michael Kuhndt ..... 90**

**Delivering Regional Eco-innovation through Knowledge Exchange - Chris G. Lambert, Allan E. W. Rennie ..... 91**

**Toward a New Understanding of Environmental Innovation - Per-Anders Langendahl, Matthew Cook, Stephen Potter ..... 98**

**I Don't Want to Drown the Frog! A Comparison of Four Design Strategies to Reduce Overdosing of Detergents - Karin M.E. Lidman, Sara E. Renström, I.C. MariAnne Karlsson.... 104**

**Advancing eco-innovation as an enabler of decoupling - Tomoo Machiba..... 111**

**Eco-Innovation and Forward Commitment in Supply Chains - Shaun McCarthy..... 118**

## Sustainable Innovation 11

<b>Eco-innovation challenge: turning costs into benefits for all? - Michal Miedzinski .....</b>	<b>119</b>
<b>How Do We Mainstream Sustainable Innovation? - Dr Richard Miller.....</b>	<b>121</b>
<b>Biomimetic Innovation Acceleration Through the V2IO® Model - Jens Møller, Thomas Laursen .....</b>	<b>123</b>
<b>Utilising a Consumer-focused Approach to Influence Sustainable Consumption - Maria Alejandra Moreno, Dr. Debra Lilley, Dr. Vicky Lofthouse.....</b>	<b>128</b>
<b>Responsible Consumption: The Next Frontier in Green Marketing - Jacquelyn A. Ottman.....</b>	<b>139</b>
<b>A New Approach to Environmentalism - Reed Paget .....</b>	<b>141</b>
<b>Exploring the Durability of Cork Products a Longitudinal Approach - Ana Carina Pereira, Han Brezet, Helena Pereira, Joost Vogtländer .....</b>	<b>142</b>
<b>Doing More With Less: The Essence of Sustainable Design - Bruce Piasecki.....</b>	<b>153</b>
<b>Transport and Environmental Innovation - Stephen Potter, Helen Roby, Matthew Cook, Per Anders Langendahl.....</b>	<b>154</b>
<b>Corporate Social Responsibility Engagement Through Eco-Efficiency and Energy Management Training - Sabina Scarpellini, Eva Llera, Miguel Marco, Juan Aranda .....</b>	<b>161</b>
<b>Development of Sustainable Products to be made in Low-income Community - Júlio D.Sc Silva, Cristina Carlier, Marcos Garamvölygi Silva, Pedro Zohrer, Bruna Madureira Pinho, Luiza Falcão Cruz.....</b>	<b>172</b>
<b>The Complexity of Responsible Design: Key Factors Affecting Industrial Design Consultants Addressing the Greater Needs of Society - Norman Stevenson, Dr Debra Lilley, Dr Vicky Lofthouse, Dr Alistair Cheyne.....</b>	<b>178</b>
<b>Transformative Innovation &amp; Sustainability Transitions - Professor Fred Steward.....</b>	<b>189</b>
<b>Social Sustainable Innovation - Trudy Thompson.....</b>	<b>191</b>
<b>Predicting Energy Thieves - Sophie Thornander, MariAnne Karlsson, Conny Bakker .....</b>	<b>193</b>
<b>Estimating Consumer Usage of Games Consoles - Amanda Webb .....</b>	<b>202</b>
<b>Does Sustainable Technology Require Sustainable Business Models? An Automotive Industry Case Study - Dr Peter Wells .....</b>	<b>212</b>
<b>Corporate Clothing Sustainability: Product Recovery in the Supply Chain - Camille Williams, Dr Claire Orwin, Dr John Williams .....</b>	<b>217</b>



## The Centre for Sustainable Design<sup>®</sup>

For more more information, please contact:

Martin Charter  
Director  
The Centre for Sustainable Design  
University for the Creative Arts  
Falkner Road  
Farnham  
Surrey GU9 7DS  
UK

Tel +44 (0)1252 892772

Fax +44 (0)1252 892747

Web [www.cfsd.org.uk](http://www.cfsd.org.uk)

An initiative of

**UCA**  
university for the **creative arts**