



The Centre for Sustainable Design®

## Sustainable Innovation 2011

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Sustainable Innovation & Design

Towards Sustainable Product Design: 16th International Conference

24 & 25 October 2011

Farnham Castle, Farnham, UK

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### 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

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Collaborating Centre on Sustainable Consumption  
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### 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

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## Abstracts

## NEST, Readapting a Domestic Landscape

*Carlos Casimiro da Costa, Henrique Fabião, António Augusto Fernandes, Universidade do Porto, Portugal*

NEST (natural/nano Energy System Technology) project design refocus in a revalidation to the exposition fixed in 1972 in MOMA, New York by Emilio Ambasz. This exposition give us a twist radical orientation proposing in that particular time new paths concerning ecological perspectives, confronting the standard mainstream, and proposing new systems to live. Design approach needs to recover these symptoms melted in time, proposing adaptable systems to different cultures and meaning in a cultural twist paradigm. For that motive is our intention to readapt thoughts and process of thinking that was intentionally collapsed in a past domestic landscape.

The NEST is a roller blind common structure that matches nano-structures and a computer system: nano-bateries and capacitors for storing, uploading, use and recharge; photovoltaic thin-film printed/coated in textile foldable layer shadow for capture energy (exterior); thin-film screen layer embedded in the same textile structure (interior) for image projection; induction wireless recharger; batteries common recharger for conventional batteries; dc/dc energy ports for recharge small/medium electronic devices. NEST program as being part of a generation of household systemic structures where several multi-functions which are enclosed to traditional electronic appliances will act in future as interface scenarios into a complex structure.

It is composed by three chunks that constitute the whole system and other external parts that can suspend the object in the interior of living environment. This overall invention integrates several other functions dematerializing a products/objects that are normally associated to the living environment (video/dvd recorders, external discs, digital passepartout, TV, converters/adapters DC/AC (rechargers for low/medium power electronic applications), home-cinema (data-shows) plus reducing the dependency of energy for interior thermal heating.

There is today the need to explore old concepts and present sustainable paths to develop 'new' environments (McDonough; Manzini), furthermore the application of new high-technologies that promote eco-efficiency and subsequent dematerialization (Goedkoop; Meijkamp), including the use of alternative energies (kan, 2006), plus the promotion of social response and do-it-yourselfer procedures (Morris; Papanek; Mari; Rammakers) suggest radical transformation in artifacts, scripts and objects.

NEST recognizes Man and his total dependency on image (Virilio) and energy in this compulsive high tech diffusion of information in distance, revealing extreme transformations between the balance with men and nature, space and time. Also felt that there is a significant digital immateriality and the way it will substitute the notion of morphological living space, enlightening a virtual representation of pixel realities of spaces, places and forms: the cyborg (Gibson), the ciberflâneur (Mitchell), the digital nomad (Rammner), all this concepts indeed provocative in the form that they transfer our senses to a new reality which is being formed, structured into fluidity, flexibility and mobility assumptions (De Kerchove; Castells; Bauman).

NEST tries to articulate intangible products and services encrypting a 'hall' family digital medium artifact bound for prosumer participation. There is the need to generate democracy objects (Dewey) proposing self-sufficiency for micro-production adaptable to every scales of living including buildings (Rogers).

## Aesthetic Design for Minimum Weight: New Approaches for Sustainable Vehicle Development

*M. Fickel, P. D. Ewing, Royal College of Art, UK*

The transport sector is one of the major originators of climate relevant emissions: Still depending on oil by 98% this sector dissipates 30% of the energy totally consumed in the EU and also causes almost one third of CO<sub>2</sub> emissions [1]. However, already by 2020 another demand growth of around 32% in passenger kilometres and 69% in tonne kilometres for freight is anticipated (EU figures only.) Against this background, mitigating negative impacts is an ambitious challenge as the increasing use of the road system has the potential to negate technical improvements in all relevant fields [2], [3]. To counteract this, further significant research efforts are required.

In this context, a better coordination of aesthetic design and engineering promises access to so far unconsidered energy saving potential -notably in the field of lightweight vehicle design. Here, exploration of transdisciplinary synergies can further reduce accelerated mass and therewith



## 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)

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