

**INVENTING SHADES  
OF GREEN**



# **ELECTRONICS GOES GREEN 2016+**

September 7 – 9, 2016  
Dahlem Cube, Seminaris Campus Hotel  
Berlin, Germany

## **THE GOING GREEN PARTNER CONFERENCES**



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Organized by

Fraunhofer Institute for Reliability  
and Microintegration IZM, Berlin

In cooperation  
with

TU Berlin, Research Center for  
Microperipheric Technologies



Entrance to conference venue of Electronics Goes Green in 2012

# WELCOME

The upcoming Electronics Goes Green conference 2016 is an outstanding event for the growing global community of scientists, product developers, and business managers working on the task of improving the environmental properties of technologies and products along the value chain of the electronics and ICT industry. Over the past years the scientific topics and industrial implementation tasks have evolved with the same dynamics as the technology itself. Advanced assembly strategies of electronics for example have increased reliability and realized environmental improvement potentials on a large scale. The recent developments in energy efficiency of power electronic devices and modules are a perfect example.

At the same time, the technological progress creates new challenges. Product types and manufacturing volumes are increasing, many products tend to get obsolete faster, the material composition of devices become more exotic, and the complexity of the manufacturing processes is practically visible in the skyrocketing costs of new labs and fabs. I would like to invite you to a scientific conference that explores the currently changing facets of today's and future green electronics. Fraunhofer IZM is very proud to be a stakeholder in this field and has been the organization behind the conference from the beginning.

The same way electronics persistently meanders between highest visibility and invisible functionality in all areas of our life, the same way we are tasked to follow and anticipate the visible and invisible ecological, economic and social implications of this growing diversity. Please open your mind to these new shades of green electronics and share your thoughts and findings at the conference.

**Klaus-Dieter Lang**  
Electronics Goes Green 2016+  
Chairman



# SCOPE

- World's leading conference on electronics & the environment
- Meeting point for business developers, technology experts, researchers and policy designers
- Innovative solutions for your specific green visions

## PRELIMINARY PROGRAM

### TRACK **Track Green Electronic Products and Applications**

- » Greening information and communications technologies in industrial, mobile and home applications
- » Sustainable electronics systems for automotive, automation, and energy supply: balancing reliability, sustainability and costs
- » Measuring and communicating green ICT: standards and indicators to improve the material and energy efficiency

### TRACK **Circular Economy pushing repair, reuse, remanufacturing and new business models**

- » Extended value chain through remanufacturing, maintenance, repair and reuse
- » Business models for circular economy: innovative strategies to close the loops
- » Measuring and improving the recyclability

### TRACK **Circular Economy pushing innovative WEEE treatment**

- » Guiding principles: current and future WEEE policies and legislations around the world
- » Closing the information gaps between producers and recyclers
- » Smart disassembly: intelligent mechanical pre-treatment
- » Closing the loops for plastics
- » Globalized e-waste management

### TRACK **Circular Economy: Focus on Critical, Conflict and Precious Metals**

- » Understanding stocks and flows of metals in the urban mine
- » Efficiency of the resource uses including metals for soldering
- » Recycling of precious and critical metals: pathways and technologies
- » Conflict minerals: governance and supply chain certifications

### TRACK **Governance: Corporate responsibility, Labelling, Standards and European Regulations**

- » REACH, RoHS and chemical restrictions
- » Supply chain management: testing and database solutions for managing hazardous substances
- » Eco-design requirements: promoting eco-innovative products
- » Environmental assessments of products and services: methods and tools
- » Social responsibility: companies towards sustainable development
- » Compliance with the WEEE legislation
- » Trends and societal developments

# INEMI FORUM & GET TOGETHER

TUESDAY SEPTEMBER 6 / 2:00 – 6:00 PM

## iNEMI Forum



### Recycling electronics alone won't save the planet (or make you rich)

Recycling of electronics has reached a point of diminishing monetary returns and new ideas and solutions for recovery are necessary. What can be done now, before regulation is established, to support a sustainable, circular economy for electronics?

iNEMI is hosting a discussion forum on the value recovery approach that needs to be implemented for the reuse and recycling of electronics and the community necessary to support maximizing the value of recovered electronics that will be essential for creating a sustainable and circular economy.

TUESDAY SEPTEMBER 6 / 6:30 – 8:00 PM

## Get Together at Seminaris

Early arrival to the conference is recommended, as we will be kicking off this year's program with a welcome reception at event hotel Seminaris on the Tuesday night, September 6. Weather permitting, the event will be held outside with a BBQ to make the most of Berlin's legendary but all too short summer weather. Don't miss the chance to get the lay of the land and meet some of the other delegates before heading into the hustle and bustle of the conference program.

Seminaris CampusHotel Berlin | Takustraße 39 | 14195 Berlin



EARLY  
REGISTRATION  
POSSIBLE

## Plenary 1: Opening Session

9:30 am –  
10:45 am

**Welcome**  
Prof. Klaus-Dieter Lang  
*Conference Chair Electronics Goes Green 2016+*

**Opening Remarks**  
Dr. Nils F. Nissen  
*Technical Conference Chair Electronics Goes Green 2016+*



## A.1 Greening ICT

**11:00 am** **Is "Software Eco-design" a Solution to Reduce the Environmental Impact of Electronic Equipment?**

Marc Vautier<sup>1</sup>, Olivier Philippot<sup>2</sup>  
<sup>1</sup>Orange, France; <sup>2</sup>Greenspector, Nantes, France

**11:30 am** **Material Selection Impact on Wearables**

Albert Tsang  
Google Inc., United States of America

**12:00 am** **Modular Products: Smartphone Design from a Circular Economy Perspective**

Karsten Schischke<sup>1</sup>, Marina Proske<sup>1</sup>, Nils F. Nissen<sup>1</sup>, Klaus-Dieter Lang<sup>1,2</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany

## D.1 Actions for Circular Economy

**11:00 am** **Maturing Abilities to Embrace the Circular Economy**

Daniela C. A. Pigosso<sup>1,2</sup>, Tim C. McAloone<sup>1,2</sup>  
<sup>1</sup>Technical University of Denmark, Kgs. Lyngby, Denmark; <sup>2</sup>essensus, Kgs. Lyngby, Denmark

**11:30 am** **Cleaning, Slowing and Closing the Loop – Greenpeace's New Guide to Greener Electronics**

Manfred Santen, Iza Kruszewska, Yixiu Wu  
Greenpeace e.V., Hamburg, Germany

**12:00 pm** **An Action Plan on Circular Economy: Outlook for the Portable Power Industry**

Hans Craen  
EPBA – European Portable Battery Association, Belgium

## E.1 REACH / Chemicals Restrictions

**11:00 am** **The EU Chemical Policy, Innovation and Circular Economy – Can the Trade-off Be Solved?**

Riccardo Corridori  
COCIR, Brussels, Belgium

**11:30 am** **Managing Compliance with New REACH Obligations in the Electrotechnical Industry**

Aidan Turnbull  
BOMcheck, United Kingdom

**12:00 pm** **How to Avoid Regrettable Chemical Substitution**

Hans Wendschlag  
Hewlett-Packard Inc., Stockholm, Sweden

**12:30 pm –  
1:30 pm** **LUNCH BREAK**

## A.2 Mobile ICT

### 1:30 pm Determination of Potential Environmental Impact of Smart Phone

Youngchai Heo, Daesik Bae, David Scuderi, Chiyoung Oh, Youngjin Suh  
Samsung Electronics, Republic of South Korea

### 2:00 pm Experts View on the Sustainability of the Fairphone 2

Marina Proseke<sup>1,3</sup>, Karsten Schischke<sup>1</sup>, Philipp Sommer<sup>2</sup>, Tina Trinks<sup>4</sup>, Nils F. Nissen<sup>1</sup>, Klaus-Dieter Lang<sup>1,3</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Deutsche Umwelthilfe, Berlin, Germany; <sup>3</sup>Technische Universität Berlin, Berlin, Germany; <sup>4</sup>Fairphone B.V., Amsterdam, The Netherlands

### 2:30 pm A Case Study in Quantitative Evaluation of Resource Efficiency

Nozomu Mishima, Tomoaki Kitajima  
Akita University, Akita, Japan

### 3:00 pm Water Footprinting for Electronic Products: Lessons Learned from a Water Footprint Case Study of a Notebook

Markus Stutz<sup>1</sup>, Stephanie Schafer<sup>2</sup>, Michael Spielmann<sup>3</sup>, Melissa Zgola<sup>4</sup>  
<sup>1</sup>Dell, Germany; <sup>2</sup>Dell, US; <sup>3</sup>Quantis, Germany; <sup>4</sup>Quantis, US

## B.2 Understanding Stocks and Flows of Critical Metals

### 1:30 pm ProSUM: Prospecting Secondary Raw Materials in the Urban Mine and Mining Waste

Jaco Huisman<sup>1</sup>, Sarah Downes<sup>2</sup>, Lucia Herreras<sup>3</sup>, Patrick Wäger<sup>4</sup>, Daniel Cassard<sup>5</sup>, Susanne Rotter<sup>6</sup>, Maria Ljunggren Söderman<sup>7</sup>, Perrine Chanceler<sup>6</sup>, Paul Mähltz<sup>6</sup>

<sup>1</sup>United Nations University, Germany; <sup>2</sup>Repic Ltd, United Kingdom; <sup>3</sup>WEEE Forum, Brussels, Belgium; <sup>4</sup>EMPA, St. Gallen, Switzerland; <sup>5</sup>Bureau de Recherches Géologiques et Minières (BRGM), Orléans, France; <sup>6</sup>Technische Universität Berlin, Berlin, Germany; <sup>7</sup>Chalmers University, Gothenburg, Sweden

### 2:00 pm Material Flow Analysis of Gallium Arsenide in the German III/V-Semiconductor Industry

Christian Clemm<sup>1</sup>, Nils Dethlefs<sup>1</sup>, Frank Bugge<sup>2</sup>, Nils F. Nissen<sup>3</sup>, Markus Weyers<sup>2</sup>, Klaus-Dieter Lang<sup>1,3</sup>  
<sup>1</sup>Technische Universität Berlin, Berlin, Germany; <sup>2</sup>Ferdinand-Braun-Institut, Leibniz-Institut für Hochfrequenztechnik, Berlin, Germany; <sup>3</sup>Fraunhofer IZM, Berlin, Germany

### 2:30 pm Critical Metals in Embedded Electronics from Swiss Passenger Vehicles

Eliette Restrepo<sup>1,2</sup>, Amund N. Løvik<sup>1</sup>, Patrick Wäger<sup>1</sup>, Rolf Widmer<sup>1</sup>, Daniel B. Müller<sup>2</sup>  
<sup>1</sup>Empa, Dübendorf, Switzerland; <sup>2</sup>Norwegian University of Science and Technology (NTNU), Norway

### 3:00 pm Flows and Stocks of Critical Materials in Batteries: Data Collection and Data Uses

Perrine Chanceler<sup>1</sup>, Paul Maehltz<sup>1</sup>, Claude Chanson<sup>2</sup>, Peter Binnemans<sup>3</sup>, Jaco Huisman<sup>4</sup>, Nils F. Nissen<sup>5</sup>, Klaus-Dieter Lang<sup>1,5</sup>

<sup>1</sup>Technische Universität Berlin, Berlin, Germany; <sup>2</sup>Recharge, Brussels, Belgium; <sup>3</sup>Eucobat, Brussels, Belgium; <sup>4</sup>United Nations University, Bonn, Germany; <sup>5</sup>Fraunhofer IZM, Berlin, Germany

## C.2 WEEE Towards Circular Economy

### 1:30 pm What Hampers WEEE from Becoming Circular?

Norbert Zonneveld  
European Electronics Recyclers Association (EERA), The Netherlands

### 2:00 pm Is the Present Business Model for WEEE Recycling Working in the Circular Economy?

Rasmus Bergström  
European Electronics Recyclers Association (EERA), The Netherlands

### 2:30 pm WEEE Plastics Going Circular....

Chris Slijkhuis  
Müller-Guttenbrunn GmbH, Amstetten, Austria

### 3:00 pm iNEMI Project for Value Recovery from End-of-Life Electronics

William L. Olson<sup>2</sup>, Wayne E. Rifer<sup>1</sup>, Carol Handwerker<sup>3</sup>  
<sup>1</sup>Green Electronics Council, United States of America; <sup>2</sup>Seagate Technology, United States of America; <sup>3</sup>Purdue University, West Lafayette, IN, United States of America

## D.2 Business Models for Circular Economy (1/2)

### 1:30 pm Building Extended Value Chains: Lessons from Swedish ICT Repair and Resale 'Gap Exploiters' for Original Equipment Manufacturers

Julia L.K. Nußholz, Katherine A. Whalen  
Lund University, Lund, Sweden

### 2:00 pm Closed-Loop Innovation for Mobile Electronics – the Business Model Innovation Approach of the sustainablySMART Project

Max Regenfelder  
ReUse e.V. (gemeinnützig), Berlin, Germany

### 2:30 pm Product Ownership 2.0: An Overview of Alternative Transaction Models for Mobile Connected Devices

Flora A. Poppelaars<sup>1</sup>, Conny A. Bakker<sup>1</sup>, Jo M.L. van Engelen<sup>1,2</sup>  
<sup>1</sup>TU Delft, Delft, the Netherlands; <sup>2</sup>University of Groningen, Groningen, the Netherlands

### 3:00 pm Front-Running Circular Economy: the Medical Imaging Devices Sector – What it Takes to Move from a Linear Economy to a Circular One

Zhen Wu  
CO CIR, Brussels, Belgium

## E.2 Solutions for Chemicals Supply Chain Management (1/2)

### 1:30 pm Management of Hazardous Substances

Rob Guzzo, Mike Werner, Art Fong, Thomas Ebert  
Apple, Cupertino, United States of America

### 2:00 pm Automated Chemical Hazard Assessment

Kristopher Wehage<sup>2</sup>, Panan Chenhansa<sup>2</sup>, Julie M. Schoenung<sup>1</sup>  
<sup>1</sup>University of California-Irvine, United States of America; <sup>2</sup>University of California-Davis, United States of America

### 2:30 pm Using EN 50581 Risk Based Approach to Manage Compliance to the Four New RoHS Phthalates by July 2019

Aidan Turnbull<sup>1</sup>, Lutz-Guenther Scheidt<sup>2</sup>, Lucas Dann<sup>2</sup>  
<sup>1</sup>Thinkstep Compliance, United Kingdom; <sup>2</sup>Thinkstep AG, Leinfelden-Echterdingen, Germany

### 3:00 pm Evolution of U.S. Chemicals Regulation: Updating the Toxic Substances Control Act for the 21<sup>st</sup> Century

Fern Abrams  
IPC - Association Connecting Electronics Industries, United States of America



## A.3 Green ICT @ Home

- 4:30 pm** **Intelligent Occupancy-Driven Thermostat by Dynamic User Profiling**  
Yannick De Bock<sup>1</sup>, Andres Auquilla<sup>1,2</sup>, Karel Kellens<sup>1</sup>, Ann Nowé<sup>3</sup>, Joost R. Duflou<sup>1</sup>  
<sup>1</sup>KU Leuven, Department of Mechanical Engineering, Belgium; <sup>2</sup>University of Cuenca, Department of Computer Science, Ecuador; <sup>3</sup>Vrije Universiteit Brussel, Computational Modeling Lab, Belgium
- 5:00 pm** **Environmental Impact of Personal-Use ICT Services for Different Lifestyles**  
Tomomi Nagao, Minako Hara, Shinsuke Hannoé  
NTT, Tokyo, Japan
- 5:30 pm** **Assessing ICT's Enabling Effect Through Case Study Extrapolation – the Example of Smart Metering**  
Jens Malmodin<sup>1</sup>, Vlad Coroama<sup>2</sup>, Pernilla Bergmark<sup>1</sup>, Craig Donovan<sup>1</sup>  
<sup>1</sup>Ericsson Research, Sweden; <sup>2</sup>KTH Royal Institute of Technology, Stockholm, Sweden

## B.3 Using Critical Metals Efficiently

- 4:30 pm** **Substitution as a Strategy for Reducing the Criticality of Raw Materials for Environmental Technologies**  
Matthias Buchert<sup>1</sup>, Winfried Bulach<sup>1</sup>, Stefanie Degreif<sup>1</sup>, Siddharth Prakash<sup>1</sup>, Siegfried Behrendt<sup>2</sup>  
<sup>1</sup>Oeko-Institut, Darmstadt, Germany; <sup>2</sup>Institut für Zukunftsstudien und Technologiebewertung IZT, Berlin, Germany
- 5:00 pm** **Circular Economy as a Means to Efficient Use of Scarce Metals?**  
Hampus Korhan André, Maria Ljunggren Söderman, Anne-Marie Tillman  
Chalmers University, Gothenburg, Sweden
- 5:30 pm** **The Material Profiles of Current Generation Smartphones**  
Thorsten Hartfeil, Sven Grieger, Arne Grünewald, Anna-Lisa Bachmann, Konrad Güth, Carsten Gellermann, Rudolf Stauber  
Fraunhofer Project Group Materials Recycling and Resource Strategies IWKS, Germany

## C.3 Guiding Principles for WEEE Policy

- 4:30 pm – 6:00 pm** **Step – Developing Legislative Principles for e-waste Policy in Developing and Emerging Countries**  
Jonathan Perry<sup>1</sup>, Eelco Smit<sup>2</sup>  
<sup>1</sup>Dell, United Kingdom; <sup>2</sup>Philips, Netherlands
- Guiding Principles to Develop e-waste Management Systems and Legislation**  
Eelco Smit<sup>1</sup>, Federico Magalini<sup>2</sup>  
<sup>1</sup>Philips International B.V., The Netherlands; <sup>2</sup>United Nations University
- Open Loop Recycling and Disposal Options for Leaded Glass from Cathode Ray Tubes**  
Eliette Restrepo<sup>1</sup>, Rolf Widmer<sup>1</sup>, Mathias Schlupe<sup>2</sup>  
<sup>1</sup>Empa, Dübendorf, Switzerland; <sup>2</sup>World Resources Forum, St. Gallen, SwitzerlandModerated
- Moderated Discussion on Guiding Principles for WEEE Policy**

Interactive  
Session

## D.3 Business Models for Circular Economy (2/2)

- 4:30 pm** **The Circular Economy and Service-dominant Logic in the Electronics Sector: A Critical Analysis of Business Models that if Applied to the Electronics Sector Will Help Promote a More Sustainable Economy**  
Scott Butler  
European Recycling Platform
- 5:00 pm** **Business Models: Innovative Value Creation**  
Malcolm Waddell  
WRAP, Banbury, United Kingdom
- 5:30 pm** **Circular Economy in the Electronics Sector: A Holistic Perspective**  
Margarida Gama, Constantin Herrmann  
thinkstep AG, Leinfelden-Echterdingen, Germany

## E.3 Solutions for Chemicals Supply Chain Management (2/2)

- 4:30 pm** **The Philips Supply Chain Solution Joins the Global Circular Economy**  
Daniel Patrick Cronin  
Pooling Partners, Eck en Wiel, The Netherlands
- 5:00 pm** **Combination of Data Base Systems and Material Assay Testing: Answer Increasingly Complex Material Related Questions with Confidence**  
Michael Riess<sup>1</sup>, Peter Müller<sup>2</sup>  
<sup>1</sup>VDE Testing and Certification Institute, Frankfurt, Germany; <sup>2</sup>Hewlett Packard Enterprise, Böblingen, Germany
- 5:30 pm** **Comply with Existing and Evolving Environmental Legislation – Reduce Effort for the Supply Chain (Including Your Company) – Mitigate Risk of Non-compliance**  
Andreas Schifflleitner<sup>1</sup>, Torsten Gerl<sup>2</sup>, Katie Boehme<sup>2</sup>  
<sup>1</sup>KERP Center of Excellence Electronic & Environment GmbH, Vienna, Austria; <sup>2</sup>iPoint-systems GmbH, Reutlingen, Germany

Wasserwerk-Berlin | Hohenzollerndamm 208a | 10717 Berlin



### Conference Dinner at Wasserwerk (see also p. 30)

Buses to the evening reception at Wasserwerk leave from the front of the hotel, starting at 6:30 pm. The last bus leaves at 6:50 pm. Please make sure to be there on time as otherwise you will have to make your own way to the conference dinner.

## A.4 Applications: Improving Electronic Products

- 8:30 am** **Smart Electrical Connectors and Connecting Technologies for Industrial Applications and its Assessment of Relevant Environmental Impacts**  
Christian Wegener<sup>1</sup>, Frank Schiefelbein<sup>1</sup>, Frank Ansorge<sup>2</sup>, M. Eng. Christian Baar<sup>2</sup>, Oliver Meier<sup>3</sup>, Jan Stefan Michels<sup>4</sup>, Roland Mödinger<sup>5</sup>  
<sup>1</sup>Siemens AG, Berlin, Germany; <sup>2</sup>Fraunhofer IZM, Oberpfaffenhofen-Weßling, Germany; <sup>3</sup>Finke Elektronik GmbH, Waldkirch, Germany; <sup>4</sup>Weidmüller Interface GmbH & Co. KG, Detmold, Germany; <sup>5</sup>ERNI Production GmbH & Co. KG, Adelberg, Germany
- 9:00 am** **Re-Design of a Digital Voice Recorder to Meet the Needs of Circular Economy – Status Analysis**  
Rainer Pamminger<sup>1</sup>, Stefan Kuso<sup>1</sup>, Wolfgang Wimmer<sup>1</sup>, Gerhard Podhradsky<sup>2</sup>  
<sup>1</sup>Technische Universität Wien, Wien, Austria; <sup>2</sup>Speech Processing Solutions GmbH, Wien, Austria
- 9:30 am** **Method of Decision Support Aimed to Design Connected White Goods**  
Eleonora Fiore, Paolo Tamborrini  
Politecnico di Torino, Turin, Italy

## B.4 Recycling of Precious Metals

- 8:30 am** **Trends in Electronic Products – The Canary in the Urban Mine?**  
Colton E. Bangs, Christina E.M. Meskers, Thierry Van Kerckhoven  
Umicore Precious Metals Refining, Belgium
- 9:00 am** **Future Perspectives for WEEE Recycling – Dynamic Evaluation of the Mobile Phones and Smartphones Waste Stream**  
Nicoleta Gurita, Jan C Bongaerts, Magnus Fröhling  
TU Bergakademie Freiberg, Freiberg, Germany
- 9:30 am** **Resource Efficient and Certified Recycling of Copper and Precious Metals Fractions from WEEE material at Aurubis**  
Andreas Nolte  
Aurubis AG, Hamburg, Germany

## C.4 Plastics – Sorting and Recycling

- 8:30 am** **Evaluation of Plastic Sorting for Recycling**  
Jef R. Peeters<sup>1</sup>, Paul Vanegas<sup>1,2</sup>, Wim Dewulf<sup>1</sup>, Joost R. Duflou<sup>1</sup>  
<sup>1</sup>KU Leuven, Department of Mechanical Engineering, Belgium; <sup>2</sup>University of Cuenca, Centre for Environmental Studies, Cuenca, Ecuador
- 9:00 am** **PC/ABS from Shredded Waste Electrical and Electronic Equipment**  
Arthur Schwesig<sup>2</sup>, Brian Riise<sup>1</sup>  
<sup>1</sup>MBA Polymers Inc., USA; <sup>2</sup>MBA Polymers Austria Kunststoffverarbeitung GmbH, Austria
- 9:30 am** **Recovery of PC/ABS from WEEE Plastic Shred by CreaSolv Process**  
Martin Schlummer, Fabian Wolff, Andreas Mäurer  
Fraunhofer IVV, Freising, Germany

## D.4 Measuring the Product Lifetime

- 8:30 am** **Developing an Indicator Setup to Measure Life-Cycle Conditions of Electronic Products**  
Janis Winzer<sup>1</sup>, Eduard Wagner<sup>2</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany
- 9:00 am** **Analysis of Durability and Repairability of Dishwashers**  
Paolo Tecchio<sup>1</sup>, Fulvio Ardente<sup>1</sup>, Fabrice Mathieux<sup>1</sup>, Laura Talens Peiro<sup>1</sup>, Sepp Eisenriegler<sup>2</sup>  
<sup>1</sup>European Commission - Joint Research Centre, Italy; <sup>2</sup>Reparatur-und Service-Zentrum R.U.S.Z., Vienna, Austria
- 9:30 am** **Consumers' Expectation for Product Lifetimes of Consumer Durables**  
Masahiro Oguchi<sup>1</sup>, Tomohiro Tasaki<sup>1</sup>, Ichiro Daigo<sup>2</sup>, Tim Cooper<sup>3</sup>, Christine Cole<sup>3</sup>, Alex Gnanapragasam<sup>3</sup>  
<sup>1</sup>National Institute for Environmental Studies, Tsukuba-City, Ibaraki, Japan; <sup>2</sup>The University of Tokyo, Tokyo, Japan; <sup>3</sup>Nottingham Trent University, Nottingham, UK

## E.4 Eco-Design Requirements / ErP Regulation

- 8:30 am** **Ecodesign with Extended Product Scope on the Example of Enterprise Servers**  
Anton Berwald<sup>1</sup>, Benoît Tinetti<sup>1</sup>, Lutz Stobbe<sup>2</sup>, Nils Nissen<sup>2</sup>, Hannes Zedel<sup>2</sup>  
<sup>1</sup>Deloitte, France; <sup>2</sup>Fraunhofer IZM, Berlin, Germany
- 9:00 am** **A Regulatory Approach for Potential Energy Efficiency Requirements on Computer Servers**  
Davide Polverini, Paolo Tosoratti  
European Commission, Brussels, Belgium
- 9:30 am** **Slashing the Hydra: Reducing Allowances in MEPS for Complex Set Top Boxes**  
Hans-Paul Siderius  
Netherlands Enterprise Agency, The Netherlands





## A.5 Applications: Automotive and Transportation

- 10:30 am Sustainability in Automotive Industry: Electromobility and its Challenges**  
Abdalla Youssef<sup>1</sup>, Ingo Birner<sup>1</sup>, Andreas Middendorf<sup>2</sup>, Klaus-Dieter Lang<sup>2</sup>  
<sup>1</sup>BMW Group, Munich, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany
- 11:00 am Development of a Demand Forecasting Model for Automotive Electric Component Remanufacturing**  
Mitsutaka Matsumoto<sup>1</sup>, Yasushi Umeda<sup>2</sup>, Shuto Tsuchiya<sup>2</sup>  
<sup>1</sup>AIST, Tsukuba, Japan; <sup>2</sup>The University of Tokyo, Tokyo, Japan
- 11:30 am Automotive Lighting Facing the Design Trend: From Former Basic Conception to Reliable and Sustainable Advanced Development.**  
Yves Dubois, Thomas Krzesaj  
Valeo, Meslin l'Évêque, Belgium
- 12:00 pm Environmental Analysis as a Basis for Ecodesigned Products**  
Mélanie Bordignon, Vanessa Lhopital  
Alstom, Villeurbanne, France

## B.5 Recycling of Critical Metals - Pathways

- 10:30 am Improving Recycling Pathways of Critical Materials**  
Rudolf Auer, Sarah Chandler, Jeff Dahmus, Charissa Rujanavech, Irina Ostwald  
Apple, Munich, Germany,
- 11:00 am Critical Raw Materials Closed Loop Recovery**  
Malcolm Waddell  
WRAP, Banbury, United Kingdom
- 11:30 am Environmental and Economic Assessment of Critical Metals Recovery**  
Toon Ansems, Arjan van Horssen, Stijn Dellaert  
TNO, Utrecht, the Netherlands
- 12:00 pm Recycling LED Retrofit Lamps**  
Xavier Lantoinette, Laure Morice, Romain Lesage  
RECYLUM, Paris, France

## C.5 Plastics - Closing the Loop

- 10:30 am A Concrete Success of Circular Economy: Closing the Loop on Plastics from WEEE**  
Ingrid Tams<sup>1</sup>, Marianne Fleury<sup>2</sup>, Thomas Van Nieuwenhuysse<sup>2</sup>  
<sup>1</sup>Groupe SEB, Écully, France; <sup>2</sup>Eco-systèmes, Courbevoie, France
- 11:00 am Guidelines Designing with Recycled Plastics-increasing Resource Efficiency in High-end Applications**  
Tanya Nimalasuriya<sup>1</sup>, Ingeborg Gort<sup>2</sup>, Eelco Smit<sup>3</sup>, Abel Gerrits<sup>4</sup>  
<sup>1</sup>Océ, Venlo, the Netherlands; <sup>2</sup>Partners for Innovation; <sup>3</sup>Philips; the Netherlands, <sup>4</sup>Universiteit Twente, Twente, the Netherlands
- 11:30 am Closing the Loop on Carbon Fiber: Using Recycled Carbon Fiber in Laptop Applications**  
Markus Stutz<sup>1</sup>, Stephanie Schafer<sup>2</sup>, Sreepad Karanam<sup>3</sup>, Matthew Morrison<sup>3</sup>, Naji Kasem<sup>3</sup>  
<sup>1</sup>Dell, Frankfurt, Germany; <sup>2</sup>Dell, United States of America; <sup>3</sup>SABIC, Riyadh, Saudi Arabia

## D.5 Extending the Product Lifetime

- 10:30 am Mind the Gap Exploiter; Circular Business Models for Product Life Extension**  
Marcel C. Den Hollander, Conny A. Bakker, E.J. Hultink  
TU Delft, Delft, Netherlands
- 11:00 am Service Lifetime and Disposal Pathways of Business Devices**  
Esther Thiébaud<sup>1</sup>, Marie Brechbühler Peskova<sup>2</sup>, Lorenz M. Hilty<sup>1,3</sup>, Mathias Schluep<sup>4</sup>, Martin Faulstich<sup>5</sup>  
<sup>1</sup>Empa, St. Gallen, Switzerland; <sup>2</sup>BFH, Bern, Switzerland; <sup>3</sup>UZH, Zurich, Switzerland; <sup>4</sup>WRF, St. Gallen, Switzerland; <sup>5</sup>CUTEC Institute, Clausthal-Zellerfeld, Germany
- 11:30 am Obsolescence of Electronics - the Example of Smartphones**  
Marina Proske<sup>1,2</sup>, Janis Winzer<sup>1</sup>, Max Marwede<sup>2</sup>, Nils F. Nissen<sup>1</sup>, Klaus-Dieter Lang<sup>1,2</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany
- 12:00 pm Paradigm Shift in Green IT – Extending the Life-Times of Computers in the Public Authorities in Germany**  
Siddharth Prakash<sup>1</sup>, Andreas Köhler<sup>1</sup>, Ran Liu<sup>1</sup>, Lutz Stobbe<sup>2</sup>, Marina Proske<sup>2,3</sup>, Karsten Schischke<sup>2</sup>  
<sup>1</sup>Oeko-Institut e.V., Freiburg, Germany; <sup>2</sup>Fraunhofer IZM, Berlin, Germany; <sup>3</sup>Technische Universität Berlin, Berlin, Germany

## E.5 Tools for Environmental Assessment

- 10:30 am Life Cycle Assessment of Community of Household Electronics**  
Eric David Williams, Erinn Ryen, Callie Babbitt  
Rochester Institute of Technology, Rochester, United States of America
- 11:00 am Developing Carbon Footprint Calculation Software for Display Industry in Taiwan**  
Jahau Lewis Chen<sup>1</sup>, Wang-Chih Chen<sup>1</sup>, Andy Kuo<sup>2</sup>  
<sup>1</sup>National Cheng Kung University, Taiwan; <sup>2</sup>Innolux Corporation, Taiwan
- 11:30 am Methods to Calculate GHG Reduction Contributions of Electronic Components**  
Ryo Yokoyama, Tetsuya Kuwashima, Yasuyuki Fujioka, Masaru Hirose  
TDK Corporation, Japan
- 12:00 pm Spreadsheet Based LCA of Electronics: Case Study of a Smart Home Device**  
Julian Christoph Maruschke, Matthias Harsch  
LCS Life Cycle Simulation GmbH, Backnang, Germany

12:30 pm – 1:30 pm LUNCH BREAK



## A.6 Provoquium

1:30 pm –  
3:00 pm

This session will challenge commonly held convictions on environmental issues and encourage us to come up with better solutions by taking a fresh look at things we believe to be true. In short 3-minute-presentations, the speakers will brain-shake traditional thinking about the environment. Will you agree with what they have to say? Or will the speakers provoke objections?

Attend the Provoquium, if you like controversial discussion and thinking outside of the box with a similar pace to the now widely known science slams!

## B.6 Recycling of Critical Metals – Technologies

1:30 pm

### A Green Method for Recycling Materials from Liquid Crystal Display Panel

En Ma  
Shanghai Polytechnic University, Shanghai, China

2:00 pm

### Recovery of Bromine and Antimony from WEEE Plastics

Martin Schlummer, Lorenz Popp, Fabian Trautmann, Andreas Mäurer  
Fraunhofer IVV, Freising, Germany

2:30 pm

### RECLAIM Project: Recovery of Yttrium and Europium from Electronic Waste, a New Hydrometallurgical Process

Vicente Lopez<sup>1</sup>, Carlos Alvarez<sup>1</sup>, Serena Sgarioto<sup>2</sup>, Dorleta Guardo<sup>3</sup>  
<sup>1</sup>Tecnicas Reunidas, Madrid, Spain; <sup>2</sup>Relight, Rho, Italy; <sup>3</sup>Indumetal Recycling, Asua-Erandi, Spain

## C.6 Smart Disassembly

1:30 pm

### Intelligent Disassembly of Components from Printed Circuit Boards to Enable Re-use and more Efficient Recovery of Critical Metals

Bernd Kopacek  
SAT, Vienna, Austria

2:00 pm

### Remote Operation Experiment towards Implementation of Remote Recycling

Akihiro Oikawa, Jun Oki, Kenta Torihara, Yuta Adowaki, Nozomu Mishima  
Akita University, Japan

2:30 pm

### Towards Smart E-Waste Demanufacturing Systems Exploiting Cyber-Physical Systems (CPSs) Capabilities

Nicoletta Picone<sup>1</sup>, Marcello Colledani<sup>1,2</sup>, Giacomo Copani<sup>1</sup>, Marco Diani<sup>1</sup>, Tullio Tolio<sup>1,2</sup>  
<sup>1</sup>ITIA-CNR Institute of Industrial Technologies and Automation, Milan, Italy; <sup>2</sup>Politecnico di Milano, Milan, Italy

## D.6 Measuring and Improving the Recyclability (1/2)

1:30 pm

### Improving Recyclability of Telecommunication Products

Lauri Smalen<sup>1</sup>, Timo Galkin<sup>1</sup>, Saija Vatanen<sup>2</sup>, Timo Junno<sup>1</sup>, Topi Volkov<sup>1</sup>, Heikki Karvinen<sup>3</sup>, Mark Benowitz<sup>1</sup>  
<sup>1</sup>Nokia, Bell Labs-CTO; <sup>2</sup>VTT Technical Research Centre of Finland, Espoo, Finland; <sup>3</sup>Aalto University, Espoo, Finland

2:00 pm

### Recycling Vendor Audit Program in Compliance with EPEAT End of Life Management in Europe

Andreas Bohnhoff, Dora Caria  
ERP SAS, Paris, France

2:30 pm

### Eco-Design for Recycling: Developing Life Cycle Inventories on the End-of-Life of Electr(on)ic Products

Xavier Lantoinette<sup>1</sup>, Laure Morice<sup>1</sup>, Romain Lesage<sup>1</sup>, Marianne Fleury<sup>2</sup>, Pierre-Marie Assimon<sup>2</sup>, Thomas Van Nieuwenhuysse<sup>2</sup>  
<sup>1</sup>RECYLUM, Paris, France; <sup>2</sup>ECO-SYSTEMES, Courbevoie, France

## E.6 Governance to Promote Eco-Innovative Products

1:30 pm

### EU Revised Public Procurement Directive

Hans Wendschlag  
Hewlett-Packard Inc., Stockholm, Sweden

2:00 pm

### Public Procurement Barriers in Promoting Market Uptake of Innovative LED Lighting

Andrius Plepys, Jessika Luth Richter  
IIIIEE/ Lund University, Lund, Sweden



## A.7 Applications: Photovoltaics

- 4:00 pm Photovoltaic Power Goes Green**  
Nouha Gazbour<sup>1</sup>, Carole Charbuillet<sup>2</sup>, Christian Schaeffer<sup>1</sup>, Guillaume Razongles<sup>1</sup>  
<sup>1</sup>CEA-INES, French National Institute of Solar Energy, Chambéry, France; <sup>2</sup>Institut Arts et Métiers de Chambéry, LCPI, Chambéry, France
- 4:30 pm Analysis of Photovoltaic Deployment Scenarios for Low-carbon Futures**  
Yusuke Kishita  
The University of Tokyo, Tokyo, Japan
- 5:00 pm Third Generation Photovoltaics: Early Intervention for a Circular Economy and a Sustainable Future**  
Rhys Gareth Charles<sup>1</sup>, Matthew Lloyd Davies<sup>2</sup>, Peter Douglas<sup>3,4</sup>  
<sup>1</sup>COATED Engineering Doctorate, Swansea University, UK; <sup>2</sup>Materials Engineering, College of Engineering, Swansea University, UK; <sup>3</sup>Chemistry Group, College of Medicine, Swansea University, UK; <sup>4</sup>School of Chemistry and Physics, University of KwaZulu-Natal, South Africa.
- 5:30 pm A Possibility of Open Zero Energy Plant Factory**  
Hiroshi Kubo<sup>1</sup>, Shun Murayama<sup>1</sup>, Masaki Tanimoto<sup>2</sup>, Kazuki Okoso<sup>2</sup>, Shizuo Maeno<sup>3</sup>  
<sup>1</sup>Chiba Institute of Technology, Chiba, Japan; <sup>2</sup>Septenary Agriculture Inc., Chiba, Japan; <sup>3</sup>mSe Corporation, Chiba, Japan

## B.7 Recycling of Critical Metals – Hydrometallurgical Processes

- 4:00 pm Recovery of Critical Metals from Lamps and CRTs**  
Valentina Innocenzi<sup>1</sup>, Ida De Michelis<sup>1</sup>, Bibiana Ferrari<sup>2</sup>, Serena Sgarioto<sup>2</sup>, Daniele Gotta<sup>2</sup>, Bernd Kopacek<sup>3</sup>, Francesco Veglio<sup>1</sup>  
<sup>1</sup>Department of Industrial Engineering, of Information and Economy, University of L'Aquila, L'Aquila, Italy; <sup>2</sup>RELIGHT S.R.L, Rho (Milan), Italy; <sup>3</sup>ISL-Kopacek KG, Vienna, Austria
- 4:30 pm Recovery of Critical Metals from LCDs and Li-Ion Batteries**  
Alessia Amato<sup>1</sup>, Laura Rocchetti<sup>1</sup>, Viviana Fonti<sup>1</sup>, Thomas Abo Atia<sup>2</sup>, Pietro Altimari<sup>2</sup>, Emanuela Moscardini<sup>2</sup>, Luigi Toro<sup>2</sup>, Francesca Pagnanelli<sup>2</sup>, Francesca Beolchini<sup>1</sup>  
<sup>1</sup>Università politecnica delle Marche, Ancona, Italy; <sup>2</sup>Sapienza Università di Roma, Rome Italy
- 5:00 pm Recovery of Base and Precious Metals from Waste Printed Circuit Boards and Spent Catalysts by Hydrometallurgical Processes**  
Ionela Birloaga<sup>1</sup>, Valentina Innocenzi<sup>1</sup>, Ida De Michelis<sup>1</sup>, Bernd Kopacek<sup>2</sup>, Francesco Veglio<sup>1</sup>  
<sup>1</sup>Department of Industrial and Information Engineering and Economics, University of L'Aquila, L'Aquila, Italy; <sup>2</sup>ISL-Kopacek KG, Vienna, Austria
- 5:30 pm Practical Experiences Operation Stationary and Mobile Hydrometallurgical Plants**  
Serena Sgarioto<sup>1</sup>, Bibiana Ferrari<sup>1</sup>, Ida De Michelis<sup>2</sup>, Bernd Kopacek<sup>3</sup>  
<sup>1</sup>RELIGHT S.R.L, Rho (Milan), Italy; <sup>2</sup>ECORECYCLING S.R.L, Rome, Italy; <sup>3</sup>SAT, Vienna, Austria

## C.7 Workshop: Closing the Information Gaps

- 4:00 pm – 6:00 pm Recycler Information Center – A Tool for Initiating Paradigmatic Change in the EU's Treatment of E-Waste?**  
Matthias Huisken<sup>1</sup>, Markus Spitzbart<sup>2</sup>, Thomas Opsomer<sup>1</sup>, Elisabeth Herbeck<sup>2</sup>  
<sup>1</sup>iFixit GmbH, Stuttgart, Germany; <sup>2</sup>Demontage- und Recycling-Zentrum D.R.Z., Vienna, Austria
- Information from Producers to Recyclers and Vice Versa: a Missing Link in the Circular Economy**  
Jörg Westerfeld  
EERA, Arnhem, Netherlands
- Moderated Discussion on How to Improve the Information Flows Between Producers and Recyclers**

Interactive Session

## D.7 Measuring and Improving the Recyclability (2/2)

- 4:00 pm Repair and Recycling Metrics – Applicability and Drawbacks of Current Methods**  
Wayne Rifer<sup>1</sup>, Lisa Dender<sup>2</sup>, Max Marwede<sup>3</sup>, Mark Schaffer<sup>4</sup>  
<sup>1</sup>Green Electronics Council, United States of America; <sup>2</sup>IBM, United States of America; <sup>3</sup>Technical University of Berlin, Berlin, Germany; <sup>4</sup>iNEMI, Pflugerville, United States of America
- 4:30 pm Would the Setting-up of Reference Values to Support the Calculation of Recyclability Rates Help Improving the Material Efficiency of Electronic Products?**  
Perrine Chancerel<sup>1</sup>, Max Marwede<sup>1</sup>, Fabrice Mathieux<sup>2</sup>, Laura Talens Peiro<sup>2</sup>  
<sup>1</sup>Technische Universität Berlin, Berlin, Germany; <sup>2</sup>European Commission - Joint Research Centre, Ispra, Italy
- 5:00 pm REEECYC'LAB: Assessing and Improving the Recyclability of Electrical and Electronic Equipments**  
Thomas Van Nieuwenhuysse, Pierre-Marie Assimon  
Eco-systèmes, Courbevoie, France
- 5:30 pm Method to Assess Ease of Disassembly for Electrical and Electronic Equipment for Ecodesign and Treatment Cost Evaluation**  
Paul Vanegas<sup>1,2</sup>, Jef R. Peeters<sup>1</sup>, Dirk Cattrysse<sup>1</sup>, Paolo Tecchio<sup>3</sup>, Fulvio Ardente<sup>3</sup>, Fabrice Mathieux<sup>3</sup>, Wim Dewulf<sup>1</sup>, Joost R. Dufflout<sup>1</sup>  
<sup>1</sup>KU Leuven, Department of Mechanical Engineering, Belgium; <sup>2</sup>University of Cuenca, Centre for Environmental Studies, Ecuador; <sup>3</sup>European Commission - Joint Research Centre, Institute for Environment and Sustainability

## E.7 Social Responsibility

- 4:00 pm The Changing CSR: Evolving Language, Metrics and Mission**  
Charles Michel Proian  
Lexmark International EMEA, France
- 4:30 pm Assessing Corporate Sustainability in Taiwan on the Basis of UN Sustainable Development Goals**  
Allen H. Hu, Lance HongWei Huang, Yen-ling Chang  
National Taipei University of Technology, Taiwan, Republic of China
- 5:00 pm Arrow Value Recovery and Close the Gap partner to Close the Loop for Electronic**  
Barbara Toorens<sup>1</sup>, Isabelle Servant<sup>1</sup>, Edwin Koolwijk<sup>2</sup>, Carol Baroudi<sup>2</sup>  
<sup>1</sup>Close the Gap, Brussels, Belgium; <sup>2</sup>Arrow Value Recovery
- 5:30 pm Social Life Cycle Assessment (SLCA) as an Effective Tool in Electronics Industry for Sustainable Development**  
Winco K.C. Yung, Karpagam Subramanian  
The Hong Kong Polytechnic University, Hong Kong, China

## A.8 Measuring and Communicating Green ICT (1/2)

- 8:30 am** **Environmental Standards Development for Electronics: The Evolution and Future of EPEAT**  
Pamela Brody-Heine  
*Green Electronics Council, Portland, United States of America*
- 9:00 am** **The Evolution of IEEE 1680.1 – Environmental Assessment of Computers, Tablets and Displays**  
Walter Jager  
*ECD Compliance, Stittsville, Canada*
- 9:30 am** **UL 110 Sustainability for Mobile Phones, Description and Status**  
William F. Hoffman III  
*UL Environment, Northbrook, United States of America*

## B.8 Metals for Soldering

- 8:30 am** **Options to Eliminate Lead From Die Attachments in Power Electronics**  
Jürgen Wilde<sup>1</sup>, Eike Möller<sup>1</sup>, Adeel Bajwa<sup>2</sup>  
*<sup>1</sup>University of Freiburg, Freiburg, Germany; <sup>2</sup>University of California Los Angeles, Los Angeles, USA*
- 9:00 am** **Thermodynamic and Theoretical-Based Modeling and Assessment of an Energy-Efficient Performance Measurement System in the Soldering Process**  
Alireza Esfandyari, Sven Kreitlein, Elias Schmidt, Dominique Thomas, Joerg Franke  
*Institute for Factory Automation and Production Systems (FAPS), Friedrich-Alexander Universität Erlangen-Nürnberg, Nürnberg, Germany*
- 9:30 am** **Recycling, Supply Chain Interventions, or Alternatives for Fair Soldering Tin?**  
Cosima Stahr, Lukas Rüttinger, Astrid Lorenzen  
*adelphi, Berlin, Germany*

## C.8 Forecasting Volumes of WEEE

- 8:30 am** **Forecasting Waste Compositions: A Case Study on Solar Energy Systems**  
Jef R. Peeters<sup>1</sup>, Paul Vanegas<sup>1,2</sup>, Wim Dewulf<sup>1</sup>, Joost R. Dufflou<sup>1</sup>  
*<sup>1</sup>KU Leuven, Department of Mechanical Engineering, Leuven, Belgium; <sup>2</sup>University of Cuenca, Centre for Environmental Studies, Cuenca, Ecuador*
- 9:00 am** **Future Generation of WEEE in Developing Countries: An Estimation Model and Case Studies in Asia**  
Masahiro Oguchi<sup>1</sup>, Atsushi Terazono<sup>1</sup>, Masaaki Fuse<sup>2</sup>  
*<sup>1</sup>National Institute for Environmental Studies, Tsukuba, Japan; <sup>2</sup>Hiroshima University, Hiroshima, Japan*
- 9:30 am** **The US Electronics Recycling Landscape**  
Jason Dean Linnell<sup>1</sup>, Carole Mars<sup>2</sup>, Christopher Nafe<sup>2</sup>  
*<sup>1</sup>National Center for Electronics Recycling, Vienna, WV, United States of America; <sup>2</sup>The Sustainability Consortium, Arizona State University, United States of America*

## D.8 Remanufacturing and Repair

- 8:30 am** **Developing a Repairability Indicator for Electronic Products**  
Sebastiaan, FJ Flipsen<sup>1,2</sup>, Conny, A. Bakker<sup>1</sup>, Guus, LA van Bohemen<sup>1</sup>  
*<sup>1</sup>TU Delft, Delft, the Netherlands; <sup>2</sup>iFixit Europe, Stuttgart, Germany*
- 9:00 am** **Remanufacturing and Upcycling of an Industrial Robot Handheld Terminal Independently from the Original Equipment Manufacturer**  
Rolf Steinhilper, Joachim Kleylein-Feuerstein  
*Fraunhofer IPA, Bayreuth, Germany*
- 9:30 am** **Building the Circular Economy: A Case Study in Repair**  
Kyle Wiens  
*iFixit, San Luis Obispo, United States of America*

## E.8 RoHS / Chemicals Restrictions

- 8:30 am** **Challenges and Difficulties Deriving from Extension of Annex II of the RoHS Directive**  
Eva Susanne Hink, Nadiia Kaiun  
*1cc GmbH, Holzgerlingen, Germany*
- 9:00 am** **Status of the RoHS Directive and Exemptions**  
Otmar K. Deubzer<sup>1</sup>, Nils F. Nissen<sup>1</sup>, Yifaat Baron<sup>2</sup>, Klaus-Dieter Lang<sup>3</sup>  
*<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Oeko-Institut e.V., Freiburg im Breisgau, Germany; <sup>3</sup>Technische Universität Berlin, Berlin, Germany*
- 9:30 am** **Lessons Learned from Medical Device Refurbishment in the Context of the RoHS Directive**  
Yifaat Baron  
*Oeko-Institut e.V., Freiburg im Breisgau, Germany*



## A.9 Measuring and Communicating Green ICT (2/2)

- 10:30 am** **Energy Efficiency of ICT: Further Improvement Through Customized Products**  
Lutz Stobbe<sup>1</sup>, Marina Proske<sup>1</sup>, Severin Beucker<sup>2</sup>, Ralph Hintemann<sup>2</sup>, Klaus Dieter Lang<sup>1,3</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Borderstep Institut, Berlin, Germany; <sup>3</sup>Technische Universität Berlin, Berlin, Germany
- 11:00 am** **Strengthening Material Efficiency of Electrical and Electronic Equipment**  
Ines Oehme<sup>1</sup>, Kristine Sperlich<sup>1</sup>, Regina Kohlmeyer<sup>1</sup>, Siddharth Prakash<sup>2</sup>, Knut Sander<sup>3</sup>, Christian Clemm<sup>4</sup>  
<sup>1</sup>German Environment Agency, Dessau-Roßlau, Germany; <sup>2</sup>Oeko-Institute e.V., Berlin, Germany; <sup>3</sup>Ökopol GmbH, Hamburg, Germany; <sup>4</sup>Technical University Berlin, Berlin, Germany
- 11:30 am** **Best Environmental Management Practice for the Electrical and Electronic Equipment manufacturing sector**  
Martin Möller<sup>1</sup>, Ioannis Antonopoulos<sup>2</sup>, Yifaat Baron<sup>1</sup>, Paolo Canfora<sup>2</sup>, Marco Dri<sup>2</sup>, Pierre Gaudillat<sup>2</sup>, Andreas R. Köhler<sup>1</sup>, Andreas Manhart<sup>1</sup>, Katja Moch<sup>1</sup>, Siddharth Prakash<sup>1</sup>, Rasmus Prieb<sup>1</sup>  
<sup>1</sup>Oeko-Institut e.V., Freiburg, Germany; <sup>2</sup>European Commission - Joint Research Centre, Spain

## B.9 Conflict Minerals – Governance

- 10:30 am** **ISO Guidance Principles for the Sustainable Management of Secondary Metals**  
Sonia Valdivia<sup>1</sup>, Maria Sureda<sup>1</sup>, Mathias Schluep<sup>1</sup>, Rolf Widmer<sup>2</sup>  
<sup>1</sup>World Resources Forum, St. Gallen, Switzerland; <sup>2</sup>Swiss Association for Standardisation, Winterthur, Switzerland
- 11:00 am** **Ethical Risks in the Supply Chain of Electronic Devices: Potentials and Limits of an EU Regulation on Conflict Minerals and Further Governance Approaches**  
Johanna Sydow, Antonia Reichwein  
Germanwatch, Berlin, Germany
- 11:30 am** **Due Diligence on 'Conflict' Minerals: A New European Regulation for a Changing Social, Political and Economic World**  
Lena Partzsch  
University of Freiburg, Freiburg, Germany

## C.9 The Two Worlds of WEEE Treatment (1/2)

- 10:30 am** **Bridging the Gap Between Informal & Formal E-waste Processors**  
Deepali Sinha Khetriwal, Olivia Godeluck, Laura Burger, Deeksha Rao Sahib, David Rochat, Ulrike Voett  
Sofies International SA, Mumbai, India
- 11:00 am** **Survey of Material Recovery by Informal E-waste Processing in the Philippines**  
Atsushi Terazono<sup>1</sup>, Masahiro Oguchi<sup>1</sup>, Shunsuke Kuzuhara<sup>2</sup>, Ruji P. Medina<sup>3</sup>, Florencio C. Jr. Ballesteros<sup>4</sup>  
<sup>1</sup>National Institute for Environmental Studies, Tsukuba, Japan; <sup>2</sup>Sendai National College of Technology, Tsuruoka, Japan; <sup>3</sup>Technological Institute of the Philippines, Manila, Philippines; <sup>4</sup>University of the Philippines Diliman, Manila, Philippines
- 11:30 am** **E-waste Implementation Toolkit – EWIT**  
Bernd Kopacek<sup>1</sup>, Isabella Capurso<sup>2</sup>  
<sup>1</sup>SAT, Vienna, Austria; <sup>2</sup>Remedia, Milano, Italy
- 12:00 pm** **Methodological Approach to Improving E-Waste Assessment in Emerging Economies**  
Karima Hamouda, Vera Susanne Rotter, Nathalie Korf  
Technische Universität Berlin, Berlin, Germany

## D.9 Reuse Workshop part 1: Understanding and Improving the Framework

- 10:30 am** **Reuse of EEE: Limits to Growth?**  
Roland Hischer, Heinz Böni  
Empa, St. Gallen, Switzerland
- 11:00 am** **Product Or Waste? Criteria To Determine Re-usability**  
Markus Spitzbart, Elisabeth Herbeck  
Die Wiener Volkshochschulen GmbH, Vienna, Austria
- 11:30 am** **Extending Product Lifetimes Through WEEE Reuse and Repair: Opportunities and Challenges in the UK**  
Christine Cole, Tim Cooper  
Nottingham Trent University, Nottingham, United Kingdom
- 12:00 pm** **Reuse of (W)EEE in Germany – Product Flows and Environmental Impacts**  
Henning Wilts<sup>1</sup>, Nadja von Gries<sup>1</sup>, Markus Meissner<sup>2</sup>  
<sup>1</sup>Wuppertal Institute, Wuppertal, Germany; <sup>2</sup>Pulswerk, Vienna, Austria

Interactive  
Session

## E.9 Governance for WEEE Management

- 10:30 am** **Business Benefits of Authorised Representative Arrangements to Manage WEEE Compliance on Behalf of Importing Distributors**  
Howard Stimpson  
EC4P, Corsham, United Kingdom
- 11:00 am** **"Make the most of it." – Experiences from the Danish Voluntary Agreement on WEEE**  
Christina Busk<sup>1</sup>, Uffe Sønderhousen<sup>2</sup>, Kristoffer Hvidsteen<sup>3</sup>, Annette Gydesen<sup>4</sup>, Mette Andersson<sup>2</sup>  
<sup>1</sup>The Confederation of Danish Industry; <sup>2</sup>NIRAS A/S, Fredriksberg, Denmark; <sup>3</sup>Accenture, Berlin, Germany; <sup>4</sup>Viegand and Maagoe, København K, Denmark
- 11:30 am** **Li-Ion Batteries: a Nuisance or a Blessing in Disguise?**  
Manfred Fahrner  
EERA, Arnhem, the Netherlands
- 12:00 pm** **Projecting the Split Between Historic and Non-Historic WEEE in Ireland**  
Michael Johnson<sup>1</sup>, Colin Fitzpatrick<sup>1</sup>, Jaco Huisman<sup>2</sup>  
<sup>1</sup>University of Limerick, Limerick, Ireland; <sup>2</sup>United Nations University, Bonn, Germany

12:30 pm – 1:30 pm **LUNCH BREAK**



## A.10 Green ICT Infrastructure

### 1:30 pm Energy Efficiency of Data Centers - A System-oriented Analysis of Current Development Trends

Ralph Hintemann<sup>1</sup>, Severin Beucker<sup>1</sup>, Jens Clausen<sup>1</sup>, Lutz Stobbe<sup>2</sup>, Marina Proske<sup>2</sup>, Nils F. Nissen<sup>2</sup>  
<sup>1</sup>Borderstep Institute, Berlin Germany; <sup>2</sup>Fraunhofer IZM, Berlin, Germany

### 2:00 pm Concept for Telecom Network Production Sites Towards Sustainable and Energy-Efficient Operation

Christoph Lange<sup>1</sup>, Norbert Casott<sup>2</sup>, Dirk Kosiankowski<sup>1</sup>, Michael Schlosser<sup>3</sup>, Ralph Schlenk<sup>4</sup>  
<sup>1</sup>Deutsche Telekom, Berlin, Germany; <sup>2</sup>Deutsche Telekom, Berlin, Germany; <sup>3</sup>Berlin Institute for Software Defined Networks GmbH, Berlin, Germany; <sup>4</sup>Alcatel-Lucent, Nuremberg, Germany

### 2:30 pm Improved Sustainability in Wavelength-Division Multiplexing Network Elements

Klaus Grobe  
 ADVA Optical Networking SE, Martinsried, Germany

### 3:00 pm Energy Efficient Ethernet in Practice

Sebastian Porombka  
 University of Paderborn, Paderborn, Germany

## B.10 Conflict Minerals – Supply Chain Management

### 1:30 pm Automating Conflict Mineral Business Processes, RCOI and due Diligence

Andreas Schiffleitner<sup>1</sup>, Katie Boehme<sup>2</sup>  
<sup>1</sup>KERP Center of Excellence Electronic & Environment, Vienna, Austria; <sup>2</sup>iPoint-systems, Reutlingen, Germany

### 2:00 pm Supply Chain Transparency in the Electronics Industry

Christina Bocher<sup>1</sup>, Susan Herbert<sup>2</sup>  
<sup>1</sup>DEKRA Assurance Services GmbH, Stuttgart, Germany; <sup>2</sup>Green Electronics Council, Oregon, USA

### 2:30 pm On-line Supply Chain Sustainability Engagement

John Spear  
 epi Consulting, London, United Kingdom

### 3:00 pm When Agendas Align: Critical Materials and Green Electronics

Alexander H. King  
 The Ames Laboratory, Ames, United States of America

## C.10 The Two Worlds of WEEE Treatment (2/2)

### 1:30 pm Mapping Material Efficiency of E-waste Recycling in two Worlds

Xianlai Zeng, Jinhui Li  
 Tsinghua University, Beijing China, People's Republic of

### 2:00 pm Creating Viable Business from Electronic Waste Recycling

Ebipuado Sapre-obi, Ife Adewumi, Sulaiman Adekola  
 Niger delta University, Yenagoa, Nigeria

### 2:30 pm The Brazilian Government Efforts to Support Electronic Recycling Facilities to Comply with Environmental Sound Practices

Arthur Braga Lima, Tiago Rocha, Marcos Pimentel  
 Centro de Tecnologia da Informação Renato Archer (CTI), Campinas, Brazil

### 3:00 pm The Person-in-the-Port Project: Volume and Quality of Used Electronics Imports into Nigeria

Olusegun Odeyingbo<sup>1</sup>, Otmar K. Deubzer<sup>1</sup>, Rüdiger Kühn<sup>1</sup>, Oladele Osibanjo<sup>2</sup>, Innocent Chidi Nnorom<sup>2</sup>, Percy Onianwa<sup>2</sup>, Gilbert Adie<sup>2</sup>, Stephanie Adrian<sup>3</sup>, Klaus Willke<sup>4</sup>  
<sup>1</sup>United Nations University, Shibuya, Tokyo; <sup>2</sup>BCCC Africa, Nigeria; <sup>3</sup>EPA, Washington D.C., USA; <sup>4</sup>Senior Expert Service, Germany

## D.10 Reuse Workshop part 2: Understanding and Improving the Products

### 1:30 pm Policies to Support Reuse and Remanufacturing of IT

Carl Johan Dalhammar, Leonidas Miliotis  
 Lund University, Lund, Sweden

### 2:00 pm Repurposing of Notebook Computers: Demonstrating A Hybrid Reuse and Dismantling End of Life Strategy

Damian Coughlan<sup>1</sup>, Colin Fitzpatrick<sup>1</sup>, Muireann McMahon<sup>2</sup>  
<sup>1</sup>Department of Electronic & Computer Engineering, University of Limerick, Limerick, Ireland; <sup>2</sup>Department of Design & Manufacturing Technology, University of Limerick, Limerick, Ireland

### 2:30 pm Challenges of Re-use and Re-manufacturing of Modern Chips in Smart Mobile Devices

Janusz Sitek, Marek Koscielski, Aneta Arazna, Wojciech Steplewski, Kamil Janeczek  
 Tele and Radio Research Institute, Warsaw, Poland

### 3:00 pm Moderated Discussion on How to Encourage Good Reuse Practices

Interactive  
Session

## E.10 Looking into the Future

### 1:30 pm A Framework of Stock-based System Design and Management Toward a Steady-state Society

Hideki Kobayashi  
 Osaka University, Osaka, Japan

### 2:00 pm The Three C's of 2020: Carbon, Collaboration and Capability Building

Deborah Albers, Michael Rohwer  
 Electronics Industry Citizenship Coalition (EICC), Alexandria, United States of America

### 2:30 pm Usage of Power Conservation System in Convenience Stores Toward 2030 CO2 Reduction Goal in Japan

Jun Fujimoto<sup>1</sup>, Akio Suzuki<sup>2</sup>  
<sup>1</sup>Chiba Institute of Technology, Chiba, Japan; <sup>2</sup>National Institute of Advanced Industrial Science and Technology (AIST), Japan

### 3:00 pm A Review of Green Electronics Research Trends

Nils F. Nissen<sup>1</sup>, Lutz Stobbe<sup>1</sup>, Hannes Zedel<sup>1</sup>, Karsten Schischke<sup>1</sup>, Klaus-Dieter Lang<sup>1,2</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany

## 3:45 pm – 4:45 pm Plenary 2: Closing Session



## POSTER PRESENTATIONS

There is no template for posters, but the format for all posters should be A0, portrait style. Please don't use font sizes smaller than 18. Authors must bring their printed poster to the conference and arrive before midday on September 7, 2016. There will be assistance for hanging the posters with a clip system. At the conference poster authors are kindly requested to stay near their posters during the poster sessions in order to answer questions from other conference delegates and the poster session chair.

## Poster Session time slots

Sept 7, 2016 | 3:30 - 4:30 pm  
 Sept 8, 2016 | 3:00 - 4:00 pm  
 Sept 9, 2016 | 12:30 - 1:30 pm

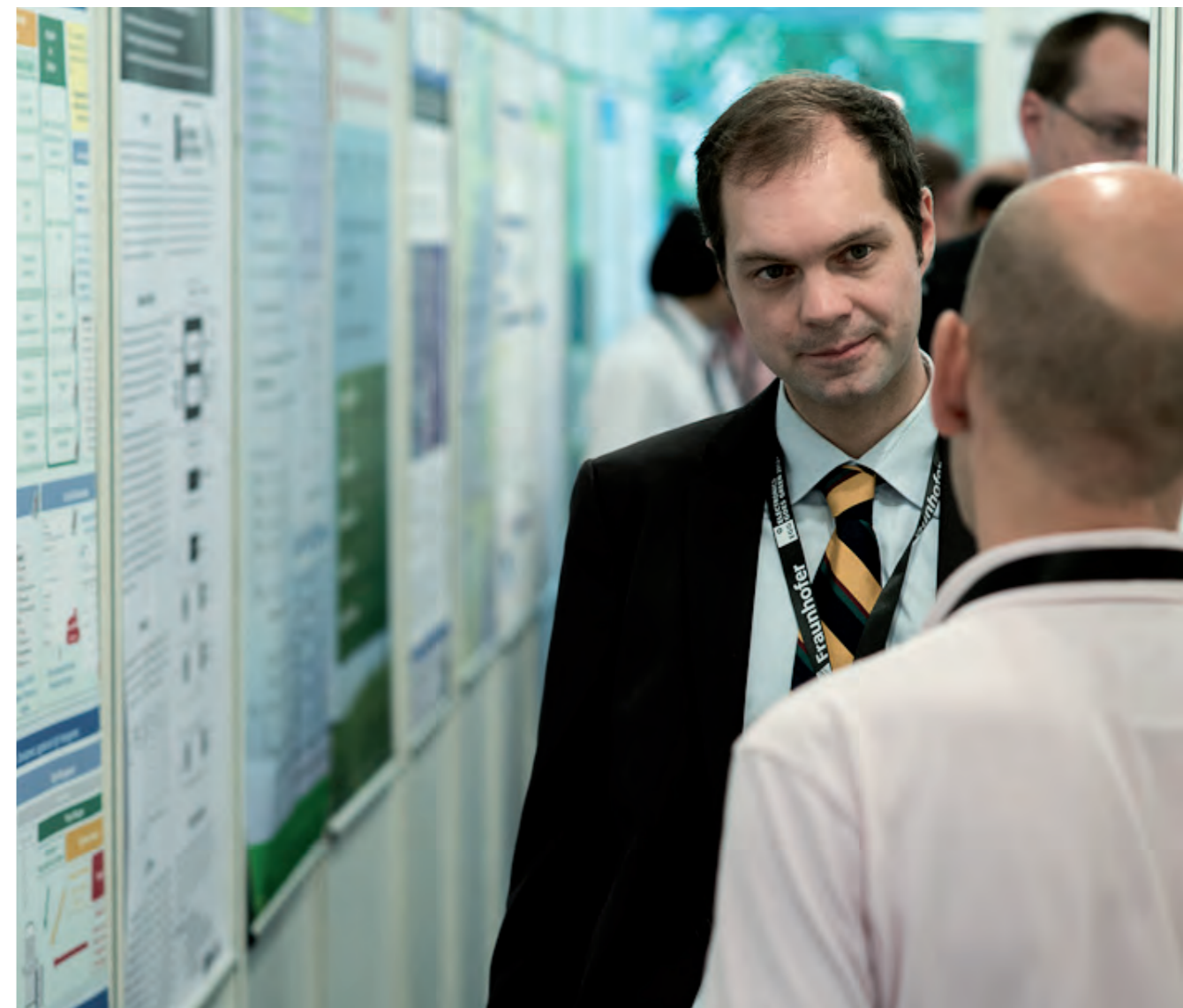
## Poster Session

- 1 Lessons from Swedish Frontrunners: Towards a Framework for Sustainable Business Models for Second Life-cycles of ICT Products**  
 Katherine A. Whalen, Julia L.K. Nußholz  
*Lund University, Lund, Sweden*
- 2 Influencing Green Electronics Design in a Circular Economy**  
 Erin Margaret Gately  
*Green Electronics Council, Portland, United States of America*
- 3 Closing Loops Within the Circular Economy**  
 Jean Cox-Kearns, Patrick Wiedemann  
*Reverse Logistics Group, Dornach, Germany*
- 4 Recycling Line for Neodymium-iron-boron (NIB) Magnets from Different Electronic Wastes**  
 Claudio Fernández<sup>1</sup>, Luis Martínez de Morentin<sup>1</sup>, Alex Branderhorst<sup>2</sup>, Gijs Schouten<sup>3</sup>, Andy Lobb<sup>4</sup>  
<sup>1</sup>Lurederra Research Centre, Spain; <sup>2</sup>Coolrec BV, The Netherlands; <sup>3</sup>Machinefabriek Otto Schouten B.V., The Netherlands; <sup>4</sup>Magnet Sales & Service Limited, United Kingdom
- 5 Development of Critical Resource Demand in Wireless Sensing and Design Strategies for Reducing Material Consumption**  
 Stephan Benecke<sup>1</sup>, Nils F. Nissen<sup>1</sup>, Klaus-Dieter Lang<sup>1,2</sup>  
<sup>1</sup>Fraunhofer IZM, Berlin, Germany; <sup>2</sup>Technische Universität Berlin, Berlin, Germany
- 6 On the Way to Future Recycling Routines for LED-Lamps: A Study of End-of-Life Lamps on the Design and the Materials Used**  
 Andrea Gassmann<sup>1</sup>, Fabian Brückner<sup>1</sup>, Jörg Zimmermann<sup>1</sup>, Roland Gauß<sup>1</sup>, Rudolf Stauber<sup>1</sup>, Oliver Gutfleisch<sup>1,2</sup>  
<sup>1</sup>Fraunhofer Institute ISC, Project Group IWKS, Alzenau, Germany; <sup>2</sup>Technische Universität Darmstadt, Materials Science, Darmstadt, Germany
- 7 Innovative Product Design for Innovative Recycling of Technology Metals**  
 Max Marwede<sup>1</sup>, Perrine Chancerel<sup>1</sup>, Maximilian Ueberschaar<sup>1</sup>, Vera Susanne Rotter<sup>1</sup>, Nils F. Nissen<sup>2</sup>, Klaus-Dieter Lang<sup>1,2</sup>  
<sup>1</sup>Technische Universität Berlin, Berlin, Germany; <sup>2</sup>Fraunhofer IZM, Berlin, Germany
- 8 Efficient Recovery of Critical and Value Materials from Electronic Waste**  
 Luis A. Diaz Aldana, Tedd E. Lister  
*Idaho National Laboratory, Idaho Falls, United States of America*
- 9 Challenges for Critical Raw Material Recovery from WEEE – the Case Study of Gallium**  
 Maximilian Ueberschaar, Sarah Otto, Vera Susanne Rotter  
*Technische Universität Berlin, Berlin, Germany*
- 10 The Non-recyclability of Critical Metals in WEEE: The Smartphones Case Study**  
 Fanny Lambert, David Bastin  
*University of Liège, Liège, Belgium*

- 11 Prospecting Secondary Raw Materials in the Urban Mine – The Case of Laptops and Tablets in Germany**  
 Hina Habib<sup>1</sup>, Jaco Huisman<sup>1</sup>, Cornelis Peter Balde<sup>1,2</sup>, Susanne Rotter<sup>3</sup>, Paul Mährlitz<sup>3</sup>, Perrine Chancerel<sup>3</sup>  
<sup>1</sup>United Nations University, Bonn, Germany; <sup>2</sup>Statistics Netherlands, Den Haag, The Netherlands; <sup>3</sup>Technische Universität Berlin, Berlin, Germany
- 12 Liquid Based Enrichment of Critical Metals from Separate WEEE Fractions**  
 Martin Schlummer, Arthur Berrang, Fabian Trautmann, Andreas Mäurer  
*Fraunhofer IVV, Freising, Germany*
- 13 Advanced Strategies to Study Bromine Contents on WEEE Plastics Through Online Detection Systems by Means of Spectroscopic Methods for Recycling Purposes**  
 Mikel Barriuso<sup>1</sup>, Asier Asueta<sup>1</sup>, David Iribarnegaray<sup>1</sup>, Sixto Arnaiz<sup>1</sup>, Alex Branderhorst<sup>2</sup>  
<sup>1</sup>Gaiker, Spain; <sup>2</sup>Coolrec, The Netherlands
- 14 Chemical Breakdown and Dismantling Data for E-Waste**  
 Carsten Dietsche<sup>1,2</sup>, Frank P. Mehlich<sup>3,4</sup>  
<sup>1</sup>FernUniversität Hagen, Germany; <sup>2</sup>Inter-Industrial Material Data Working Group, Germany; <sup>3</sup>Giessen University, Institute for Anorganic and Analytical Chemistry, Germany; <sup>4</sup>Chemie Consulting, Germany
- 15 Business Plan Calculation Tool for Manual Dismantling Facilities**  
 Elisabeth Herbeck<sup>1</sup>, Markus Spitzbart<sup>1</sup>, Mathias Schlupe<sup>2</sup>  
<sup>1</sup>Die Wiener Volkshochschulen GmbH, Vienna, Austria; <sup>2</sup>World Resources Forum, St. Gallen, Switzerland
- 16 Assessment of E-Waste in the State of Kuwait in year 2011**  
 Bader Al-Anzi<sup>1</sup>, Dalal Al-Ajmi<sup>2</sup>  
<sup>1</sup>College of Life Science, Kuwait University, Kuwait; <sup>2</sup>Environment Public Authority, Kuwait
- 17 Analysis of e-Waste Flows in the Electrical Electronic Equipment (EEE) Sector, Nigeria**  
 Innocent Chidi Nnorom<sup>1,2</sup>, Olusegun Ayodeji Odeyingbo<sup>3</sup>, Oladele Osibanjo<sup>2</sup>  
<sup>1</sup>Abia State University Uturu, Nigeria, Nigeria; <sup>2</sup>BCCC Africa, Nigeria; <sup>3</sup>United Nations University
- 18 Overcoming Challenges to Ensure Green Management of e-Waste in Nigeria**  
 Innocent Chidi Nnorom<sup>1,2</sup>, Olusegun Ayodeji Odeyingbo<sup>3</sup>  
<sup>1</sup>Abia State University Uturu, Nigeria, Nigeria; <sup>2</sup>BCCC Africa, Nigeria; <sup>3</sup>United Nations University
- 19 Characterization and Assessment of Management Alternatives for Rejects Generated in WEEE Sorting Process**  
 Yovana M. B. Saavedra<sup>1</sup>, Marco Castro<sup>2</sup>, Valdir Schalch<sup>2</sup>, Aldo R. Ometto<sup>1</sup>  
<sup>1</sup>University of São Paulo, São Paulo School of Engineering/Department of Production Engineering, São Carlos, Brazil; <sup>2</sup>University of São Paulo, São Paulo School of Engineering/Department of Hydraulics and Sanitation, São Carlos, Brazil
- 20 Challenges of Reverse Logistics Activities for Lithium-Ion Batteries**  
 Moritz Neuffer, Lisa Gruber, Antonia Ottahal  
*TechProtect GmbH, Holzgerlingen, Germany*
- 21 What Are the Environmental Benefits of Increasing the WEEE Treatment in France?**  
 Rachel Horta Arduin<sup>1</sup>, Carole Charbuillet<sup>2</sup>, Françoise Berthoud<sup>3</sup>, Nicolas Perry<sup>4</sup>  
<sup>1</sup>IPT - Instituto de Pesquisas Tecnológicas do Estado de São Paulo, Brazil; <sup>2</sup>Institut Arts et Métiers de Chambéry, Le Bourget du Lac, France; <sup>3</sup>Université Grenoble Alpes, CNRS, Grenoble, France; <sup>4</sup>Arts et Métiers - I2M, Talence, France
- 22 Research – The Final Component to Improve e-Waste Recycling Industry in Ecuador**  
 Ricardo Andres Montero Bermudez, Juan Carlos Escobar Moya  
*Yachay Public Company, San Miguel de Urucuí, Ecuador*
- 23 The Application of Bioleaching Technology in Recycling Metals from the Electronic Waste**  
 Jianfeng Bai<sup>1,2</sup>, Weihua Gu<sup>1</sup>, Xuning Zhuang<sup>1</sup>, Jin Zhao<sup>1</sup>, Kaimin Shi<sup>2</sup>, Chenglong Zhang<sup>1</sup>, Jingwei Wang<sup>1</sup>  
<sup>1</sup>Shanghai Cooperative Center of WEEE Recycling, Shanghai Polytechnic University, People's Republic of China; <sup>2</sup>The University of Hongkong, Hongkong

- 24 Application of Life Cycle Models in R&D of Electronic Products to Evaluate New Technology Developments**  
Matthias Harsch, Julian Christoph Maruschke  
*LCS Life Cycle Simulation GmbH, Backnang, Germany*
- 25 A Life Cycle Assessment of Waste Management: A Case Study of Used ICT Products Sold in the BoP Markets**  
Sheng-Lung Lin, Jian-You Wu, Syuan-Liang Huang  
*Chaoyang University of Technology, Taiwan, Republic of China*
- 26 Integrated Evaluation of Functional and Visual Design towards Sustainability**  
Tsubasa Naito, Tomoaki Kitajima, Nozomu Mishima  
*Akita University, Akita, Japan*
- 27 Sustainability Indicators for Information and Communication Technology Solutions and Services**  
Minako Hara, Tomomi Nagao, Xiaoxi Zhang, Machiko Shinozuka, Shinsuke Hannoe  
*NTT, Tokyo, Japan*
- 27 Promotion of High-voltage DC for Power Supply Systems in Telecommunication Buildings**  
Atsushi Sakurai, Minako Hara, Takeshi Iwato, Yuriko Tanaka  
*NTT Nippon Telegraph and Telephone Corporation, Japan*
- 28 Eco-Design Trade-Offs for Wavelength-Division Multiplexing Network Elements**  
Klaus Grobe  
*ADVA Optical Networking SE, Germany*
- 29 Green Technology; Green Computing in a Sustainable Context**  
Stephen Kaboggoza  
*Azam Media Uganda Limited, Sky Tower Technologies, Uganda*
- 30 Environmental Performance of Reusing Small Electrical and Electronic Equipment: Case Study of Vacuum Cleaners**  
María D. Bovea, Victoria Pérez-Belis, Valeria Ibáñez-Forés, Pilar Quemades-Beltrán  
*Universitat Jaume I, Castellón de la Plana, Spain*
- 31 New Technology to Improve the Efficiency of Photovoltaic Cells for Producing Energy**  
Bertrand Laratte, Tatiana Perminova  
*University of Technology of Troyes, Troyes, France*
- 32 Evaluation of Simultaneous Consumption of Electrical Energy at Energy-Efficient Solar House**  
Satoko Nasu, Yasuo Sugai  
*Chiba University Graduate School of Engineering, Chiba, Japan*
- 33 Carbon, Binder, and Solvent Free Anodes for Lithium Ion Batteries Using Silicon-based PECVD**  
Fernando Gómez-Baquero, Bruce Toyama, Doug Grose  
*BESSTECH LLC, Albany, NY, United States of America*
- 34 Ecodriving: A Driving Style to Optimise the Use Phase of Our Vehicles**  
Santiago González Ocón  
*Eco-efficient Design, Switzerland*
- 35 Case Studies of Innovative Eco-Design - Focusing on Development Background, Technical Features and Sustainable Points**  
Youngdo Jung, Hyunjung Im  
*Korea Environmental Industry & Technology Institute (KEITI), Republic of South Korea*
- 36 PBW (Proton Beam Writer) application for EcoDesign of Electronics**  
Hidetaka Hayashi<sup>1,2</sup>, Hiroyuki Nishikawa<sup>1</sup>  
*<sup>1</sup>Shibaura Institute of Technology, Tokyo, Japan; <sup>2</sup>EcoDesign Promotion Network, Tokyo, Japan*

- 36 Current Measures in Hazardous Substances Management for Products – an Overview and Critical Evaluation Regarding Effectiveness and Efficiency**  
Ralph Schneider<sup>1</sup>, Jürgen Henke<sup>1</sup>, Stefan Dully<sup>2</sup>  
*<sup>1</sup>Fraunhofer-Institut für Produktionstechnik und Automatisierung IPA, Stuttgart, Germany; <sup>2</sup>DuPont International Operations Sàrl, Le Grand-Saconnex / Geneva, Switzerland*
- 37 WEEE with Value: Experience, Opportunities, and Implications for Legislation**  
Jessica Luth Richter, Naoko Tojo, Thomas Lindhqvist  
*IIIIEE/ Lund University, Lund, Sweden*
- 38 WEEE Legislation in Africa - Status and Current Developments**  
Arne Campen, Eva Hink, Wolfram Kühn, Stefanie Enders  
*1cc GmbH, Holzgerlingen, Germany*
- 39 Understanding Waste Diversion Claims and UL2799 Zero Waste to Landfill Certification**  
William F. Hoffman III  
*UL Environment, Northbrook, United States of America*
- 40 Registration and Reporting Duties of EEE in EU Member States**  
Jens Becker  
*Bitkom Servicegesellschaft mbH, Berlin, Germany*
- 41 The Future of Environmental Product Compliance – Industrial Manufacturing Megatrends and Their Implications for Compliance Officers to Manage Compliance in the Next Decade**  
Lutz-Guenther Scheidt<sup>1</sup>, Kerri Doyle<sup>2</sup>, Tedi West<sup>2</sup>, Lucas Dann<sup>1</sup>, Michael Betz<sup>1</sup>  
*<sup>1</sup>thinkstep AG, Leinfelden-Echterdingen, Germany; <sup>2</sup>Siemens PLM Software, USA*





# GENERAL INFORMATION

## Conference Fees

	EARLY BIRD until June 30	REGULAR past June 30
Regular	950 €	1.100 €
Speaker, Poster Presenter	695 €	–
Co-Chairs, Program Committee Members	550 €	550 €
Student	350 €	500 €
Participation in iNEMI Discussion Forum on Tuesday, September 6, 2016	50 €	50 €
Additional conference dinner for students or accompanying persons	75 €	80 €

The registration fee includes all lunches, daytime refreshments, evening events and WiFi access for regular participants, speakers, poster presenters, co-chairs and members of the program committee.

Student fees are only available for undergraduate and master students, they do not apply to PhD students. For students everything except the conference dinner is included, this can be booked separately.

All speakers and poster presenters are required to register by June 30, 2016 in order to secure their place in the conference.

## Conference Venue & Accommodation

The EGG 2016+ Conference will be held at the Dahlem Cube Seminaris Hotel, close to the heart of the city. The conference center in the shape of a glass cube is a masterpiece of modern architecture by Helmut Jahn, Chicago. It is situated in the southwest of Berlin, in the district of Dahlem.

Rooms at preferential rates have been reserved for participants of the conference (100.00 EUR/ single room, 125.00 EUR/double room). September is a very busy time in Berlin, so reservations are highly recommended. Please download the ordering form (.pdf) from our website or mention the keyword "EGG 2016" when making your reservation over the phone.

**Seminaris Campus Hotel Berlin**  
Takustraße 39  
14195 Berlin

Phone: +49 30 557797-0  
Fax: +49 30 557797-100

[www.seminaris.de/hotels/seminaris-campus-hotel-berlin.html](http://www.seminaris.de/hotels/seminaris-campus-hotel-berlin.html)

For further hotel recommendations please consult our website.

## Lunch and coffee breaks

Coffee breaks will be held in the poster and exhibition room on the ground floor. Lunch will be provided both there and in the restaurant of the Seminaris hotel.

## Dietary requirements

The rich buffet lunch is designed to cater for all dietary requirements and all tastes. When in doubt, please consult one of the chefs serving the food, they will be able to give you detailed information.

## Internet access

We will provide all conference delegates with wireless internet access. Log-in details will be available before the conference.

## Conference language and proceedings

The official language of all presentations is English.



# EVENING PROGRAM

WEDNESDAY, SEPTEMBER 8 / 7:00 – 11:00 PM

## Gala Dinner at Wasserwerk

Join us for the Electronics Goes Green 2016 gala dinner at Wasserwerk. Built in 1906, Wasserwerk, which translates as water pump station, kept water flowing through Berlin's pipes throughout the 20th Century. The iconic red-brick building is very typical of turn-of-the-century Berlin and Brandenburg architecture and has now been transformed into a beautiful event location. Guests marvel most of all at the stunning, industrial-chic interior, which features the pumping station's original giant piston pumps.

The evening promises to be a lively highlight of the conference and an excellent opportunity for mingling and networking with conference delegates from all over the world. Discuss hot topics, controversial presentations or just shoot the breeze with experts from a wide range of disciplines to make the most of your conference participation.

### Green Electronics Council (GEC) Catalyst Award

The Green Electronics Council (GEC) Catalyst Awards seek to inspire innovation in the design, manufacture and use of electronics to advance sustainability principles. By recognizing transformative yet scalable advances, GEC highlights innovative best practices throughout the supply chain that move society ever closer to a world in which only sustainable electronics are designed, manufactured, purchased and processed at the end of their useful life.

The nomination period has now closed, and a panel of third-party experts has begun judging the nominations. Finalists for the 2016 Catalyst Award will be announced this summer. Nominations were accepted worldwide from any organization, individual or combination thereof collaborating to achieve sustainability. Nominations were accepted for products, processes, policies and programs launched within the past five (5) years and that exist in the public domain at the time of submission.

The Catalyst Awards are managed by the Green Electronics Council, a mission-driven 501(c)(4) non-profit that seeks to achieve a world in which only sustainable electronics are designed, manufactured, bought, used and recycled. Founded initially to manage EPEAT, the definitive global rating system for greener electronics, GEC advocates for sustainable electronics by facilitating both manufacturers and large-scale purchasers to understand the challenges facing sustainable electronics; to commit to address those challenges; and to act and change internal operational, manufacturing and procurement behaviors. GEC collaborates with stakeholders of all types to facilitate the adoption of sustainable manufacturing and procurement behaviors.

Further information: <http://greenelectronicscouncil.org/sustainable-solutions/awards>



Wasserwerk-Berlin | Hohenzollerndamm 208a | 10717 Berlin

THURSDAY, SEPTEMBER 8

## The night is yours – and no city has longer nights than Berlin!

Coming to a conference in Berlin is a great chance to get to know the city. On the Thursday evening, conference participants get to swap workshops and seminars for a refreshing dip into Berlin's cultural life. A concert, a boat trip, a museum visit or may be just an evening in one of Berlin's many parks, enjoying the sunset with the locals?

We'll have some suggestions on our website by early August, the rest will be up to you!



**Organized by**

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