Friday, 14 December 2001

Room 1

9:20-10:20
A3-1: Life Cycle Design

1. **Proposal for Spiral Design Approach**
   Kazuhiko Yamazaki, *IBM Japan, Japan*

2. **Decision Factors of Product Life Cycle Strategies**
   Satoru Kato, Tomoyuki Hata, Fumihiko Kimura, *The Univ. of Tokyo, Japan*

3. **Toward A Life Cycle Design Guideline for Inverse Manufacturing**
   Yasushi Umeda, *Tokyo Metropolitan Univ., Japan*

10:40-11:40
A3-2: EcoDesign Processes

1. **Pros and Cons of Adjusting and Extending Functionality of First Generation End-of-Life Evaluation Tools in Relation to User Requirements**
   Mirjam Korse-Noordhoek[1], Casper Boks[2], Ab Stevels[2], *[1]TNO Industrial Technology, [2]Delft Univ. of Technology, The Netherlands*

2. **Life Cycle Process Knowledge — Application during Product Design**
   Ola Bernard Faneye, Anderl Reiner, *Technical Univ. of Darmstadt, Germany*

3. **System-Based Product Design and System Structure Changeover under Integrated Optimality: A Case Study on Leading Design of Vehicles**
   Kikuo Fujita, Shinji Shiba, *Osaka Univ., Japan*

Room 1

14:00-15:40
A3-3: EcoDesign Methods

1. **Development of Product Green Innovation Design Method**
   Chih-Chen Liu[1, 2], Jahau L. Chen[2], *[1]Far East Coll., [2]National Cheng Kung Univ., Taiwan*

2. **Selection and Implementation — Key Activities to Successful Use of EcoDesign Tools**
   Sofia Ritzén[1], Mattias Lindahl[2], *[1]Royal Inst. of Technology, [2]Univ. of Kalmar, Sweden*

3. **Applicable Methods for Sustainable Development for Small and Middle-Size Companies**
   Udo Lindemann, Thomas Hessling, Philipp C. Hutterer, Markus Moertl, *TUM, Lehrstuhl fuer Produktentwicklung, Germany*

4. **Ecodesign Methodology Development within Indian European Ecodesign Program**
   Johan Carel Diehl[1], G. V. Soumitri[2], Ana Mestre[3], *[1]Delft Univ. of Technology, The Netherlands, [2]Indian Inst. of Technol. Delhi, India, [3]INTI, CINDES, Portugal*

5. **Sustainable Product-Service-Systems: The Kathalys Method**
   Helma Luiten[1], Marjolijn Knot[2], T. van der Horst, *[1]TNO Industrial Technology, [2]Delft Univ. of Technology, The Netherlands*

16:00-16:40
A3-4: Design for X (1)

1. **Design Idea of Wind Power Generator by Product Dissection**
   Haruo Sakamoto[1], Junichi Matsuoka[1], Takashi Uchino[1], Sachiko Migiwa[1], Toshifumi Asai[2], *[1]Kochi Univ. of Technology, [2]ELF Co., Japan*

2. **Development of an Environment Friendly, Energy-Efficient Copier**
   Kazunori Karasawa, Hisao Murayama, Yasuhisa Kato, Masayuki Ohtani, Koichi Kanetani, Takako Satoh, *Ricoh, Japan*

Room 2

9:20-10:40
A3-5: EcoDesign Case Studies (5)

1. **Design and Application of Air Power Meter in Compressed Air Systems**
   Maolin Cai, Toshiharu Kagawa, *Tokyo Inst. of Technology, Japan*

2. **Valuation for Two Experimental Studies of the 'Perfect Recycle House' — Reuse and Recycle of a Case Study House**
   Yuki Kanemori, Yusuke Nakajima, Hiroto Takaguchi, Toshio Ojima, *Waseda Univ., Japan*

3. **Pb-Free Plating for Peripheral/Leadframe Packages**
   Yoshikuni Nakadaira[1], Tatsuo Matsuura[1], Masahiro Tsuriya[1], Nhat D. Vo[2], Ryan R. Kangas[2], Jason M. Conrad[2], Balachandar Sundram[3], Kee-Huat Lee[3], Selvakumar M. Arunasalam[3], *[1]Motorola Japan, [2]Motorola, USA, [3]Motorola Malaysia*

4. **Solar Powered Mobile Telephony**
   Erik C. Palm[1], Flemming Hedén[1], Asako Zanma[2], *[1]Ericsson Radio Systems, Sweden, [2]Nippon Ericsson, Japan*

11:00-12:00
A3-6: Integration of EcoDesign and CAD

1. **The Development of a CAD Integrated DFE Workbench Software Tool**
   Thomas Roche[1], Elena Man[2], Jimmie Browne[2], *[1]GMIT, [2]NUIG, Ireland*

2. **The DFE Workbench Software Tool Case Study**
   Thomas Roche[1], Camelia Chira[1], Elena Man[2], Jimmie Browne[2], *[1]GMIT, [2]NUIG, Ireland*

3. **3D Environmental-Conscious Design System**
   Yuichi Arita, Kazuyuki Ujiie, Akira Sakai, Tadanobu Matsumura, Haruhiko Yamamoto, *Fujitsu, Japan*

Room 2

14:00-15:20
A3-7: Information Sharing for EcoDesign (1)

1. **Eco-KIT: Webbased Ecodesign Innovation Toolbox for SMEs**
   Bart Jansen, An Vercalsteren, *Vito, Belgium*

2. **ECODESIGN Online: The New Internet Tool for Environmentally Conscious Product Design**
   Wolfgang Wimmer, *Vienna Univ. of Technology, Austria*

3. **Efficient LCI Data Exchange for Approximate LCA in Industry**
   Karl G. Mueller, Fumihiko Kimura, *The Univ. of Tokyo, Japan*

4. **A Framework for Structured Data Retrieval in LCA Using Feature Technology**
   Harald E. Otto, Karl G. Müller, Fumihiko Kimura, *The Univ. of Tokyo, Japan*

15:40-16:40
A3-8: Information Sharing for EcoDesign (2)

1. **The Information System: An Advisory Tool or How to Select the 'Right' Support for DFE**
   Marc Ernzer, Olaf Weger, Herbert Birkhofer, *Darmstadt Univ. of Technology, Germany*

2. **Integration of Waste-Specific Expert-Knowledge in a Design Environment for Sustainable Products**
   Maike Hora, Johannes Jager, Burkhard Wolf, *Darmstadt Univ. of Technology, Germany*

3. **Developing Java-Based Web Application to Support Effective Recycling and Material Circulation**
   Sang-Jae Song, *Hiroshima Inst. of Technology, Japan*

Room 3

9:20-10:20
C3-1: Reuse and Recycling (Strategies and Technologies) (3)

1. **An Economical and Technical Analysis of a Household Appliance Remanufacturing Process**
   Erik Sundin, *Linkoping Univ., Sweden*

2. **LCI Analysis for Treatment Processes of Disposed Office Appliances**
   Masao Yukumoto[1], Misao Murakami[1], Yasushi Umeda[2], *[1]Kawasaki Steel, [2]Tokyo Metropolitan Univ., Japan*

3. **Development of Recyclable Eco-Packaging**
   Isamu Tanaka, Eiji Tamura, Isamu Seki, Satoshi Ishihara, Juusei Matsumoto, Tomoaki Arai, *Ricoh, Japan*

10:40-12:00
C3-2: Reuse and Recycling (Strategies and Technologies) (4)

1. **Recycle of Cut Waste of Glass Fabric Coated by Polyvinyl Chloride**
   Tetsuya Takahashi[1], Teruo Kimura[2], *[1]Shimane Univ., [2]Kyoto Inst. of Technology, Japan*

2. **Compression Molding of Biodegradable Board Using Waste of Bedding Cotton**
   Teruo Kimura[1], Yasushi Naito[1], Seiji Hatta[2], *[1]Kyoto Inst. of Technology, [2]Kyoto Municipal Textile Research Inst., Japan*

3. **Intelligent Disassembly of Electr(on)ic Equipment**
   Reinhard Knoth, Martina Hoffmann, Bernd Kopacek, Peter Kopacek, *Austrian Society for Systems Engineering and Automation, Austria*

4. **Separation of a Joint Using Hydrogen**
   Naoe Hosoda, Tadatomo Suga, *The Univ. of Tokyo, Japan*

Room 3

14:00-15:20
C3-3: Reuse and Recycling (Strategies and Technologies) (5)

1. **Electrostatic Separation Technology for Waste Plastics — Development of a High Purity Separator for Plastics**
   Hiroyuki Daiku, Tetsuya Inoue, Masanori Tsukahara, Hidehiko Maehara, Kenji Kakeda, *Hitachi Zosen, Japan*

2. **Challenges to Achieving Sustainable Aqueous Systems: A Case Study in Metalworking Fluids**
   Steven J. Skerlos, Peter Adriaens, Kim Hayes, Alexa Rihana, Katsuo Kurabayashi, Shuichi Takayama, Julie Zimmerman, Fu Zhao, *The Univ. of Michigan at Ann Arbor, USA*

3. **Environmentally-Friendly Treatment and Recycling of Industrial Wastes in the Nippon Mining & Metals Group**
   Yasuhito Kawasaki[1], Takahiko Okura[2], *[1]Nippon Mining & Metals, [2]Nikko Techno Service, Japan*

4. **Recycling of Wastewater Generated from Semiconductor Processing Factories**
   Masashi Nishimura, Masao Kiyohara, Kohichi Sugiyama, *Ricoh, Japan*

15:40-17:20
E3-1: Environmental Education

1. **The Instructional Models and Guidelines for Developing a Curriculum in Eco-design**
   Chen-fu Chen, *Ming Chuan Univ., Taiwan*

2. **Ricoh's Programs for Contributing to Betterment of the Environment and Society**
   Megumi Kawahara, *Ricoh, Japan*

3. **Integrating Environmental Considerations into Modern Engineering Education**
   Günther Seliger, Matthias P. Meyer, *Technical Univ. Berlin, Germany*

4. **Internet Based Ecodesign Education**
   Johan Carel Diehl, *Delft Univ. of Technology, The Netherlands*

Room 3

5. The Development of Ecodesign Course for Industrial Design Students and Professionals in India

G.V. Soumitri[1], Jan Carel Diehl[2], *[1]Indian Inst. of Technology Delhi, India, [2]Delft Univ. of Technology, The Netherlands, [3]INETI, CINDES, Portugal*

Room 4

9:20-11:00
B3-1: Long Fatigue Life (Giga-Cycle) of Materials (1)

1. **Optimaization of Marerial Selection and Design for Car Industry in order to Increase Durability (Keynote)**
   Clause Bathias, *CNAM/ITMA, France*

2. **Cyclic Damage of Some High Strength Alloys Showing Subsurface Crack Generation in High-Cycle Fatigue**
   Osamu Umezawa, *National Inst. for Materials Science, Japan*

3. **Characteristic S-N Property of High Strength Steels in Ultra-Wide Life Regime under Rotating Bending**
   Tatsuo Sakai[1], Nobuaki Tanaka[1], Mitsuhiro Takeda[2], Manabu Kanemitsu[3], Noriyasu Oguma[4], *[1]Ritsumeikan Univ., [2]Toray Industries, [3]Kanazawa Technol. Coll., [4]Koyo Seiko, Japan*

4. **Expansion of the Database MSDRD and Analyses of S-N Fatigue Test Data in Ultra-Long Life Regime**
   Tatsuo Sakai[1], Tomofumi Shintani[1], Kenji Okada[2], Satoshi Fukui[2], Takafumi Sogawa[2], Noriyasu Oguma[3], *[1]Ritsumeikan Univ., [2]Takamatsu National Coll. of Technology, [3]Koyo Seiko, Japan*

11:20-12:40
B3-2: Long Fatigue Life (Giga-Cycle) of Materials (2)

1. **Fracture Surface Analysis of Bearing Steels with Long Fatigue Life**
   Naotake Ohtsuka[1], Yasunori Shindo[1], Wataru Kimura[2], *[1]Ryukoku Univ., [2]Takazono Industries, Japan*

2. **Giga-Cycle Fatigue Properties of a High Strength Steel SNCM 439**
   Yuji Nakasone, Katsuhisa Ogawa, Jun'ichi Katoh, *The Science Univ. of Tokyo, Japan*

3. **Effects of Shotpeening Treatment on Very Long Life Fatigue Property in Ductile Cast Irons**
   Yasuo Ochi[1], Takusaburo Hosoya[1], Kiyotaka Masaki[1], Takashi Matsumura[1], Takeshi Sekino[2], *[1]Univ. of Electro-Communications, [2]Cannon, Japan*

Room 4

4. **On Evaluation Method of the Data for Long Life Fatigue Property**
   Satoshi Hanaki[1], Masaru Zako[2], Tesei Kurasiki[2], Hitoshi Uchida[1], *[1]Himeji Inst. of Technology, [2]Osaka Univ., Japan*

14:00-15:40
D3-1: Environmental Conscious Market and Corporate Strategies

1. **Sufficiency Strategies for A Sustainable and Competitive Economy: Reversed and Inversed Incentives**
   Warter R. Stahel, *Product-Life Inst., Switzerland*

2. **Green Marketing of Consumer Electronics II**
   Ab Stevels, Richard Agema, Eelco Hödemaker, *Delft Univ. of Technology, The Netherlands*

3. **An Application of the Market Microstructure Theory to Markets for Recyclable Products**
   Kouhei Iyori[1], Itsuo Hatono[1], Sobei Oda[2], Kanji Ueda[1], *[1]Kobe Univ., [2]Kyoto Sangyo Univ., Japan*

4. **Consideration of the Definition of Zero State on a Scale of Positive and Negative Evaluation**
   Koji Masuda, *Fuji Xerox, Japan*

5. **Corporate Environmental Strategies in Poland**
   Michal Szymanski, Saburo Ikeda, *The Univ. of Tsukuba, Japan*

16:00-17:20
D3-2: Servicification for Dematerialization

1. **From EcoDesign of Products to Sustainable System Design: Delft's Experiences (Keynote)**
   Han Brezet, J. C. Diehl, Sacha Silvester, *Delft Univ. of Technology, The Netherlands*

2. **Service Engineering to Intensify Serivice Contents in Product Life Cycles**
   Tetsuo Tomiyama, *The Univ. of Tokyo, Japan*

3. **Functional Sales as a Further Approach to Environmental Product Development — A Case Study**
   Gunilla Olundh, Sofia Ritzèn, *Royal Inst. of Technology (Stockholm), Sweden*

Room 5

9:20-10:20
E3-2: Environmental Accounting

1. **A Pilot Project of Flow Cost Accounting in Japan**
   Yoshikuni Furukawa, *Nitto Denko, Japan*

2. **Environmental Accounting at Ricoh**
   Hiromitsu Hatano, Hiroshi Uramoto, *Ricoh, Japan*

3. **Environmental Accounting in Product Design**
   Hidemi Tomita, *Sony, Japan*

10:40-12:00
F3-1: LCA (1)

1. **A Simple Life Cycle Assessment Method for Green Product Conceptual Design**
   Jahau L. Chen, Chih-Wei Liau, *National Cheng kung Univ., Taiwan*

2. **Eco-Balance in Business Activities**
   Hiroyuki Abe, *Ricoh, Japan*

3. **Environmental Impact Assessment for Various Information Technology Systems and Classification by Their Environmental Aspects**
   Shigeyuki Miyamoto, Hiroo Harada, Jun Fujimoto, *NEC, Japan*

4. **A Study on Comparison of Life Cycle Energy Consumption and CO_2 Emission in Grains Production; Transportation in Japan and Heilongjiang Province of China**
   Jie Chen[1], Hisashi Kobayashi[2], *[1]Ibaraki Univ., [2]Tokyo Univ. of Agriculture and Technology, Japan*

Room 5

14:00-15:40
F3-2: LCA (2)

1. **Industrial Ecology: Theory and Environmental Strategy in Viet Nam**
   Le Huy Ba, Thai Van Nam, *Univ. of Technology, Viet Nam*

2. **Development of a Risk Assessment Method for Product Disposal in Landfills**
   Eiji Hirao, Shigeyuki Miyamoto, *NEC, Japan*

3. **Waste Input-Output Analysis of Disposal, Recycling, and Reuse of Electric Home Appliances**
   Shinichiro Nakamura[1], Yasushi Kondo[2], *[1]Waseda Univ., [2]Toyama Univ, Japan*

4. **The Development of the Environmental Efficiency Potential Assessment**
   Katsuya Nagata[1], Masahito Aizawa[2], Ken Asaoka[2], Chikako Usami[2], *[1]Waseda Univ., [2]Mikuniya Environmental Management Systems Inst. Inc., Japan*

5. **Development of Endpoint-Type Methodology of LCIA in Japan**
   Norihiro Itsubo, Atsushi Inaba, *National Inst. of Advanced Industrial Science and Technology, Japan*

16:00-17:00
B3-3: Maintenance

1. **A Framework for Web-Enabled E-Maintenance System**
   Jay Lee, *Univ. of Wisconsin-Milwaukee, USA*

2. **Life Cycle Management of Inductrial Robots Based on Deterioration Evaluation — Facility Layout and Motion Planning Taking Account of Joint Gear Wear —**
   Atsushi Yamada, Shozo Takata, *Waseda Univ., Japan*

3. **Decision-Making Method of Optimum Inspection Interval for Plant Maintenance by Genetic Algorithms**
   Masanori Yamamoto, Riadh Zaier, Peng Chen, Toshio Toyota, *Kyusyu Inst. of Technology, Japan*

Room 6

9:20-12:00
Special Theme 6-3: Research Trends in Lead-Free Soldering

1. **Lead-Free Trends and Requirements and the Need for Global Co-Operation (Keynote)**
   Kay Nimmo, *ITRI, UK*

2. **EUREKA Project Lead-Free**
   Güenter F. Grossmann, *Swiss Federal Inst. for Materials Testing and Research, Switzerland*

3. **Development of Environmentally Preferred Plastic Ball Grid Array, PBGA, Components**
   Yushi Matsuda[1], Alan Woosley[2], Thomas Koschmieder[2], G.K. Teh[3], *[1]Motorola Japan, [2]Motorola, USA, [3]Motorola Malaysia*

4. **Estimate of CO_2 Emission for Lead-Free Soldering by Life Cycle Inventory Analysis**
   Hiroshi Yamaguchi[1], Koji Serizawa[1], Atsushi Inaba[2], *[1]Hitachi, [2]National Inst. of Advanced Industrial Science and Technology, Japan*

5. **Lead-Free Soldering — Future Aspects of Toxicity, Energy and Resource Consumption**
   Otmar K. Deubzer[1], Hansjörg Griese[1], Tadatomo Suga[2], *[1]Fraunhofer IZM Berlin, Germany, [2]The Univ. of Tokyo, Japan*

6. **Lead-Free Soldering Trends in USA (Keynote)**
   Carol Handwerker, *NIST, USA*

Room 6

13:00-15:00
Special Theme 11-3: IMS Project on Lead-Free Soldering EFSOT

1. **Outline of IMS Project "Next Generation Environmental Friendly Soldering Technology"**
   Kouji Serizawa, Masahide Okamoto, Hanae Shimokawa, Asao Nakano, Takenori Ninomiya, *Hitachi, Japan*

2. **Upgrading Pb-Free Soldering Technology (1) — Reflow Soldering**
   Tomoya Kiga[1], Hiroshi Matsubara[2], Katsuaki Suganuma[3], *[1]Sony, [2]Sharp, [3]Osaka Univ., Japan*

3. **Upgrading Pb-Free Soldering Technology (2) — Flow Soldering**
   Makoto Miyazaki[1], Shigeo Nomura[1], Toshiyasu Takei[1], Naoaki Katsuyama[2], Hiroyuki Tanaka[2], Masanobu Akanuma[2], *[1]Oki Electric, [2]Hokkaido Industrial Research Inst., Japan*

4. **Reliability of Joints between Pb-Free Solder and Pb-Free Metallized Leads**
   Masahide Okamoto[1], Hanae Shimokawa[1], Koji Serizawa[1], Toshio Narita[2], *[1]Hitachi, [2]Hokkaido Univ., Japan*

5. **Evaluation of Biological Impact of Metals in Pb-Free Solder**
   Hiroshi Satoh[1], Kazuyuki Omae[2], Momoko Chiba[3], Takejiro Takamatsu[4], Toru Kuboi[5], *[1]Tohoku Univ., [2]Keio Univ. [3]Juntendo Univ., [4]National Institute of Environmental Studies, [5]Shizuoka Univ., Japan*

6. **Environmental Impact Evaluation for the Full Life Cycle of Products Using Pb-Free Solders**
   Hideyuki Hamano[1], Tadatomo Suga[1], Masahide Okamoto[2], Otmar Deubzer[3], *[1]The Univ. of Tokyo, [2]Hitachi, Japan, [3]Fraunhofer IZM, Germany*

15:20-17:20
Special Theme 10-3: Low-Temperature Lead-Free Solder

1. **Lead Free Activities of JEITA**
   Noriki Ushio, *Matsushita Electronics Component Co., Japan*

Room 6

2. **JIEP Project fow Low-Temperature Lead-Free Solder and Its Report on Questionaire Survey**
   Tadatomo Suga[1], Makoto Takeuchi[2], [1]*The Univ. of Tokyo,* [2]*Victor Co. of Japan, Japan*

3. **Sn-Zn Eutectic Alloy Soldering in a Low Oxygen Atmosphere**
   Masahiro Tadauchi, Izuru Komatsu, Hiroshi Tateishi, Kouichi Teshima, *Toshiba, Japan*

4. **CSP Mounting Reliability with Sn-Zn-Bi in JIEP Project**
   Qiang Yu[1], Tomoya Kiga[2], Makoto Takeuchi[3], Keiko Toi[4], Yoshihisa Kato[5], [1]*Yokohama National Univ.,* [2]*Sony,* [3]*Victor Co. of Japan,* [4]*TABAIESPEC,* [5]*Oki Engineering Co., Japan*

5. **Newly Developed Real Time Monitoring System for Ionic Migration of Lead Free Solder by Means of Quartz Crystal Microbalance**
   Sachio Yoshihara, Hirokazu Tanaka, Fumitaka Ueta, Kazuhiro Kumekawa, Hiroaki Hiramatsu, Takashi Hirakatsu, *Utsunomiya Univ., Japan*

6. **Applications of Sn-Zn Lead-Free Solder in Reflow Soldering Process**
   Motoji Suzuki, Hiroshi Matsuoka, Eiichi Kono, *NEC, Japan*