13th Society And Materials International Conference

SAM 13

20 & 21 May 2019
Pisa, ITALY

Scuola Superiore Sant'Anna

FINAL PROGRAM

ArcelorMittal

Réseau Eco SD
Eco-conception de systèmes durables

ICT COISP
Information and Communication Technologies for Complex Industrial Systems and Processes

IF Steelman

IRT m2p
Institut de Recherche Technologique Matériaux Métallurgie et Procédés

MetaFensch
Institut de Métallurgie du Val de Fensch

Istituto di Tecnologie della Comunicazione, dell'Informazione e della Percezione
Sant'Anna
Scuola Universitaria Superiore Pisa

Day 1 – 20 May

8.30	*Welcome coffee and registration*	
9.00	**Welcome address**	**Prof. Sabina NUTI, Scuola Superiore Sant'Anna, Italy** **Jean-Pierre BIRAT, IF Steelman, France**

Session 1: Sustainability, circular economy and eco-design

Chairman: tba

9.20	**Keynote Lecture: Karl BUTTIENS, ArcelorMittal, Belgium**
10.00	*Are circular economy solutions beneficial by definition?*, G. GARAVINI, Ecoinnovazionne SRL, Italy
10.20	*Case study of industrial symbiosis for improved residual material utilization in the steel industry*, K. LUNDKVIST, Swerim AB, Sweden
10.40	*Coffee break & Poster session*
11.10	*From titanium scrap to high-value powders*, N. MCDONALD, MetaFensch, France
11.30	*Value retention options in the Circular Economy: issues and challenges of LED lamps preprocessing*, S. RAHMAN, University of Technology of Troyes, France
11.50	*How effective is the reuse as a circular economy strategy? Assessment of the potential environmental benefits of second-hand consumption*, F. REALE, Ecoinnovazionne SRL, Italy
12.10	*ATISOL C2C – Ecodesign of a "vapour and air barrier membrane" made of renewable materials*, S. GROSLAMBERT, University of Liège, Belgium
12.30	*A quadratic programming model for the optimization of off gas network in integrated steelworks,* A. MADDALONI, Scuola Superiore Sant'Anna/TeCIP, Italy
12.50	*How to generate and assess eco-innovative ideas in early design phases?,* O. PIALOT, QUARTZ/Supméca, France
13.10	*Lunch*

Session 2: Energy, climate and mobility

Chairman: tba

14.40	**Keynote Lecture: Renzo VALENTINI, Pisa University, Italy**
15.20	*Life Cycle Assessment of Fluctuating Electricity Demand,* J. WALZBERG, Polytechnique Montréal, Canada
15.40	*Product environmental footprint of an innovative technology for primary aluminium production,* L. ZANCHI, Ecoinnovazionne, Italy
16.00	*Design for recyclability – challenges, limits & need for action on the way towards a circular battery economy,* J. PETERS, KIT, Germany
16.20	*An optimized LCA approach to evaluate prospective grids*, H. ELZEIN, Polytechnique Montréal, Canada
16.40	*Coffee break & Poster session*
17.10	*A preliminary study for monetarizing life cycle assessment impacts of battery electric vehicles,* J. GARCIA, PSA, France
17.30	*Study of parameter uncertainty in the automotive industry,* J. RIVERA, ArcelorMittal, France
17.50	*Towards a sustainable material choice in the automotive industry,* N. IKEN, Renault, France
18.10	*Resource demand for the mobility transition – batteries for bus and autonomous mini bus vehicles,* M. WEIL, KIT, Germany
18.30	*End of sessions day 1*

19.15 **City tour**

20.00 **J.S. Thomas Award by ArcelorMittal & Gala dinner**

Day 2 – 21 May

8.15	Welcome coffee and registration

Session 3: Critical materials & MFA

Chairman: tba

8.40	**Keynote Lecture: *Toward environmentally sustainable patterns of resource consumption and production*, Kenichi NAKAJIMA, National Institute For Environmental Studies, Japan**
9.20	*Resource paradox problem revealed by Total Material Requirement*, E. YAMASUE, Ritsumeikan University, Japan
9.40	*SURFER – What is the burden of raw materials requirements to achieve the French energy transition?*, F. LAI & F. LAURENT, BRGM, France
10.00	*Economic Feasibility of Recycling Rare Earth Oxides from Lighting Technologies*, Y. QIU, University of Santa Barbara, Unite States
10.20	*The influence of stock dynamics on new technology penetration,* R. BILLY, NTNU, Norway
10.40	*Coffee break & Poster session*
11.10	*Material Flow Analysis Around The World: Perspectives And Limitations For Decision-Maker,* A. THEVENOT, CyVi / Université de Bordeaux, France
11.30	*Comparing the environmental performance of copper supply chains: a combined LCA and MFA approach,* D. TURNER, EMPA, Switzerland

Session 4: Social challenges and responsible research & innovation

Chairman: tba

11.50	**Keynote Lecture: Béatrice BELLINI, Université Paris Nanterre, France**
12.30	*Palimpsest and heterotopia, as metaphors of the circular economy,* J.P. BIRAT, IF Steelman, France
12.50	*Could we talk of "Responsible materials"?,* A. DECLICH, Knowledge & Innovation, Italy
13.10	*Lunch*
14.40	*Modeling the Circular Economy in Environmentally Extended Input-Output Tables: methods, software and case study*, F. DONATI, Leiden University, Netherlands
15.00	*The (love & hate) role of entropy in process metallurgy*, H. TVEIT & L. KOLBEINSEN, NTNU, Norway
15.20	*Greening the cement sector: a POLES model-based approach*, S. MIMA, Université de Grenoble, France
15.40	*Finding universally applicable indicators for sustainable resource management: a comparison of circularity and statistical entropy*, J. TANZER, TU Wien, Austria
16.00	*Public and societal engagement: good practices for co-creation of research and innovation outcomes*, H. THRONE-HOLST, OsloMet University, Norway
16.20	*Coffee break & Poster session*

Session 5: ROBOARSH

Chairman: tba

16.50	**Keynote Lecture: *Socio-Digital Transformation: Combining Industry 4.0 with Qualification 4.0,* Antonius SCHRÖDER, Technische Universität Dortmund, Germany**
17.30	*A robotic workstation designed for harsh environmental conditions to improve safety in the steel industry,* V. COLLA, Scuola Superioe Sant'Anna, Italy
17.50	*New Human-Robot Interaction: From Operator to Supervisor*, M. KOHLGRÜBER, SFS Dortmund, Germany
18.10	*Radio-frequency sensor for flux powder thickness measurement in billet / blooms continuous casting mould*, F. MACCI, RINA Consulting, Italy
18.30	*A geometric and thermal measurement system for the dimensional control of blooms section*, M. VEZZOLA, BM Group, Italy
18.50	**SAM 10 Conclusions - Jean-Pierre BIRAT, IF Steelman**
19.00	*End of day 2*

Posters

- *Economic and ecological assessment of different stationary batteries using different energy to power ratio,* M. BAUMANN, KIT, Germany
- *Graphene oxide quantum dots synthesized from biomass wastes: white light emitting material in the solid state*, GAUMET, University de Lorraine, France
- *Revegetation of a temporary constructed wetland created for securing a landfill area*, GIANNINI, Scuola Superiore Sant'Anna, Italy
- *A New Data Collection Approach for Material Flow Analysis and Application in Railway Infrastructures in France*, IMRAN, UTT, France
- *Environmental assessment of hard carbon anode materials for sodium-ion batteries,* J. PETERS, KIT, Germany
- *Optimization approach for attractive and sustainable products*, TECHERTCHIAN, Université de Toulon, France
- *Social sustainability assessment of technologies for the energy transition – focus societal acceptance*, M. WEIL, KIT, Germany
- *The anthropogenic neodymium cycle in Europe. Stock, flows and recycling potentials of the "new twin",* CIACCI, University of Bologna, Italy
- T.b.a. , M. LUNDHAUG, NTNU, Norway
- *Governance of emerging technologies: the nanolabel risk management and communication approach for nano-materials*, F. BOCCUNI, INAIL, Italy
- *Personalized life cycle assessment – reflecting individuality within the methodological framework*, A-K. BRIEM, University of Stuttgart, Germany
- *Plastic material recycling in steel industry: a fruitful example of circular economy*, F. CIRILII, RINA Consulting, Italy (tbc)
- *Computational fluid dynamics model-based online tool to optimize slab cut after steel intermixing in CC slabs*, M. DE SANTIS, RINA Consulting, Italy
- *Analysis of a controversy for education to sustainable and acceptable processes, products and services*, A. DELEBARRE, Mines ParisTech, France and G. WEI, SJTU ParisTech Elite Institute of Technology, China
- *The steel plant: the heart of an industrial symbiosis project*, L. DI SANTE, RINA Consulting, Italy
- *Autoadaptation of materials flows and environmental impact estimation for EAF process through application of self learning procedures based on process monitoring through KPI's*, P. FRITTALLE, Feralpi Group, Italy (tbc)
- *Service-learning as an opportunity to introduce sustainability competences in engineering degrees*, T. GURAYA, Jaume I University, Spain
- *Eco-optimization of a carsharing product-service system*, O. GUYON, PSA, France
- *The Global Long-Chain Omega-3 Fatty Acid Balance*, H-A. Hamilton, NTNU, Norway (tbc)
- *A New Vision for Refractory Designing*, D. OLEVANO, RINA Consulting, Italy
- *Establishing an industrial symbiosis - key factors and time aspects in steel industry*, S. ROSENDAHL, Swerim AB, Sweden
- *Responsible research and innovation: analyzing costs and benefits of RRI implementation in industrial context*, D. PIMPONI, Italian Association for Industrial Research, Italy
- LCI analysis considering recycling, I. DAIGO, University of Tokyo, Japan

Organizing Committee

The conference is organized by:
V. Colla (Scuola Superiore Sant'Anna)
B. Fornai (Scuola Superiore Sant'Anna)
G. Fick (IRT-M2P)
M. Chiappini (ArcelorMittal)
JP. Birat (IF Steelman)
D. Millet (EcoSD)

Scientific committee

Chairman: Jean-Pierre Birat (IF Steelman)
Vice chairwoman: V. Colla (Scuola Superiore Sant'Anna)

Venue

Scuola Superiore Sant'Anna - Aula Magna
Piazza Martiri della Libertà, 33
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Registration

To register, please fill in the form available online.
Deadline: the 6h of May 2019.
There is no registration fee!