

# 13<sup>th</sup> Society And Materials International Conference

## SAM 13

20 & 21 May 2019  
Pisa, ITALY

Scuola Superiore Sant'Anna



# PRELIMINARY PROGRAM



ICT COISP

Information and Communication Technologies for  
Complex Industrial Systems and Processes



Sant'Anna  
Scuola Universitaria Superiore Pisa



# Day 1 – 20 May

8.30 Welcome coffee and registration

**9.00 Welcome address**

## 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, Ecoinnovazione 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, Ecoinnovazione 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, Ecoinnovazione, 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*

**20.30 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: Kenichi NAKAJIMA, National Institute For Environmental Studies, Japan

9.20 *SURFER – What is the burden of raw materials requirements to achieve the French energy transition?*, F. LAURENT, BRGM, France

9.40 *Economic Feasibility of Recycling Rare Earth Oxides from Lighting Technologies*, Y. QIU, University of Santa Barbara, United States

10.00 *Resource paradox problem revealed by Total Material Requirement*, E. YAMASUE, Ritsumeikan University, Japan

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*, 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. THRONEHOLST, OsloMet University, Norway

16.20 *Coffee break & Poster session*

## Session 5: ROBOARSH

Chairman: tba

### 16.50 Keynote Lecture: 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 Superiore 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*, Boccuni, INAIL, Italy (tbc)
- 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 (tbc)
- Analysis of a controversy for education to sustainable and acceptable processes, products and services*, A. DELEBARRE, Mines ParisTech, France (tbc)
- The steel plant: the heart of an industrial symbiosis project*, L. DI SANTE, RINA Consulting, Italy (tbc)
- 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 (tbc)
- 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 (tbc)
- 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 (tbc)

## 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)

## Venue

Scuola Superiore Sant'Anna - Aula Magna  
Piazza Martiri della Libertà, 33  
56127 Pisa

## Registration

To register, please fill in the form available [online](#).

Deadline: the 6<sup>h</sup> of May 2019.

There is no registration fee!

## Scientific committee

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

## Contact

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