



8th International Workshop on
DESIGN THEORY

Special Interest Group
of the Design Society

26th-27th January 2015
MINES ParisTech



Organized by the [Chair of Design Theory and Methods for Innovation](#) | CGS – MINES ParisTech

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Chaired by Akin Kazakci
 8:30-9:00: **Welcome**
 9:00-9:05: **Introduction and opening**, Pascal Le Masson (MINES ParisTech), Eswaran Subrahmanian (CMU)
 9:05-9:30: **Guest Speaker: Design Science in Research and Education**, Panos Y. Papalambros (University of Michigan)
 9:30-10:00: **Overview of recent and upcoming DT SIG activities**, Pascal Le Masson (MINES ParisTech), Eswaran Subrahmanian (CMU) Yoram Reich (Tel Aviv University)
 10:00-11:00: **Invited Presentation: Engineering Global Development**, Amos Winter (MIT)
Coffee Break

SESSION: MATHEMATICS AND DESIGN THEORY

11:15-12:00 :A category-theoretic approach to materials design, David Spivak (MIT)
12:00-12:45 :Generic fractility and design theory, Armand Hatchuel (MINES ParisTech)

8:30- 12:30 PARALLEL SESSIONS

- **Session 1: Design Theory and Methods**
(Chaired by Eswaran Subrahmanian, reported by Fabien Jean)
- **Session 2: Design Theory and Models**
(Chaired by Ehud Kroll, reported by Kenza El Qaoumi)
- **Session 3 : Design Theory and Managerial Implications**
(Chaired by Sophie Hooge, reported by Benjamin Cabanes)
- **Session 4 : Design Theory and Identity of Objects**
(Chaired by Christophe Abrassart, reported by Laura Le Du)

Chaired by Pascal Le Masson

SESSION: DATA-SCIENCE AND DESIGN THEORY

- **14:00-14:30 : Data Science: a revolution in progress**, Balazs Kégl (Centre for Data Science, Université Paris Saclay)
- **14:30-15:00 : Data Science: A new frontier for design theory**, Akin Kazakçi (MINES ParisTech)

SESSION: MODULARITY AND TECHNOLOGY

- **15:00-15:30 : Design fixation in professional practice**, Nathan Crilly (University of Cambridge)
- **15:30-16 :00 : Designing PSI**, Yoram Reich (Tel Aviv University), Eswaran Subrahmanian (CMU)

Coffee Break

- 16:30-18:30 **WORKSHOPS**

Chaired by Armand Hatchuel

SESSION: COGNITIVE DYNAMICS IN DESIGN

- 14:00-14 :30 : Improvisational Design**, Juliet Chou, Barbara Tversky (Columbia Teachers College and Stanford University)
- 14:30-15:00 : The spiritual antecedent of C-K Theory**, Ade Mabogunje, Neeraj Sonalkar and Larry Leifer (Stanford University)

SESSION: KNOWLEDGE REPRESENTATION, GENERATIVITY AND DESIGN THEORY

- 15:30-16:00: The concept of architectural type and ontological methods for design analysis**, Dino Borri, Domenico Camarda, Maria Rosaria Stufano Melone (Polytechnico di Bari)
- 16:00-16:30:Analyzing the generative effects of sketching with design theory**, Juliette Brun, Benoit Weil, Pascal Le Masson (MINES ParisTech)

Coffee Break

- 16:30-18:30 **FUTURE PROGRAM**

Parallel Sessions– Tuesday January 27th (8h30-12h30)

Parallel sessions 1: Design Theory and Methods (20mn each presentation) *Chaired by Eswaran Subrahmanian, report by Fabien Jean*

- **Revisiting an Inspiring Design Thinking Process at the Light of a DKCP Process in the C-K Framework**, Patrick Corsi (IKBM), Claude Michel (Solvay)
- **Tool for scheduling and monitoring teamwork in Project-Based Learning in engineering education**, Joan Camps (Universitat Politècnica de Catalunya)
- **An innovative process designed for intermediate size enterprises**, Lavayssiere P., Blanco E., Le Dain M.-A., Chévrier P, (G-SCOP, Université de Grenoble)
- **Design Technologies Lost Tribes**, Susan Imholz (consultant)
- **Towards a TRIZ based and C-K validated creative approach in architectural design**, Sajjad Nazidizaji, Ana Tomé, Francisco Regateiro (Universidade de Lisboa)
- **Exploring designing with composite materials**, Helene Jones, Carwyn Ward, Anna Chatzimichali, Kevin Potter (University of Bristol)
- **(Re)designing the Internet: The limits of network approaches**, Paris Chrysos (ISC Paris School of Management)

Parallel sessions 2: Design Theory and Models (20mn each presentation) *Chaired by Ehud Kroll, reported by Kenza El Qaoumi*

- **What is a process model?** Claudia Eckert (The Open University)
- **Towards the development of Socio-Technical Systems within the C-K design theory**, Stephano Borgo (Laboratory for Applied Ontology, ISTC-CNR)
- **What is the Empirical Support for Theoretical Design Models**, Udo Kannengiesser (Metasonic), John Gero (Krasnow)
- **A search and optimization perspective on conceptual design**, Ehud Kroll (Technion)
- **Time to reframe research on abduction in design?** Lauri Koskela (University of Huddersfield) , Ehud Kroll (Technion)
- **Understanding Product Interdependencies through Interfaces**, Mehmet Donmez (SKEMA), Juliana Hsuan (Copenhagen Business School)
- **Role of engineering as bridge in C space and K space**, Frido Smulders (Delft University of Technology)

Parallel sessions 3: Design Theory and Managerial Implications (20mn each presentation) *Chaired by Sophie Hooge, reported by Benjamin Cabanes*

- **Analyzing the micro-process of collaborative concept generation at ideation stages**, Jovana Kovacevic, (Dauphine Univ), Sophie Hooge (MINES ParisTech), Albert David (Dauphine Univ)
- **On sweat and tears in fulfilling the promise of big data: the emergence of a new dominant design in meteorological data assimilation**, Sylvain Lenfle (Polytechnique, Cergy Université), Akin Kazakci (MINES ParisTech)
- **Enhancing Innovation in Cross-disciplinary Research: lessons from an Innovative Design approach**, Gwenaël Vourc'h (INRA), Juliette Brun, Benoit Weil, Pascal Le Masson (MINES ParisTech)
- **Knowledge integration of and by design**, Per Aman, Hans Andersson (Linköping University)
- **Contrasting French and Japanese views on the Quality of Collaboration in Creative design sessions**, Mohini Vanhille, Françoise Détienne, Michael Baker (Télécom ParisTech), Céline Mougnot (Tokyo Institute of Technology)
- **From the reflexive practitioner to the creative practitioner in urban planning domain**, Giovanni Rabino (Politecnico di Milano), Maria Rosaria Stufano Melone (Politecnico di Bari)
- **Non-predictive Prospective and Design theory**, Georges Amar (Chaire TMCI), Benoit Weil (MINES ParisTech)

Parallel sessions 4: Design Theory and Identity of Objects (20mn each presentation) *Chaired by Christophe Abrassart, reported by Laura Le Du*

- **L'interdiscipline du design** : Humanities in the inter-discipline of design, Annie Gentes (Télécom ParisTech)
- **Modularity and Complexity: Building a domain-neutral systems framework**, Chih-Chun Chen, Nathan Crilly (University of Cambridge)
- **How do 'smart' objects define themselves?** Emeline Brulé (Télécom ParisTech)
- **Beyond the duality of scientific and design objects**, Muriel Mambrini-Doudet (INRA), Anne-Françoise Schmid (chaire TMCI)
- **Co-design as joint exploration of new artifacts and new narratives of the self through « ethical prototypes » : the case of a Library's gamification in Montreal**, Christophe Abrassart (Université de Montréal)
- **Simondon's Techno-logy and the Design of "Image-Objects"**, Vincent Bontems, Vincent Minier (CEA)
- **Agro-Ecosystem as ecological funds: a condition for innovative design?** Elsa Berthet (INRA), Blanche Segrestin, Benoit Weil (MINES ParisTech)

WORKSHOP 1: Design theory and Management, led by Pascal Le Masson (MINES ParisTech)

In the 20th century, management was strongly based on the decision-making paradigm. In the last decades, the study of contemporary forms of collective action has required to introduce the design paradigm in management science (see for instance the track "design paradigm in the European Academy of Management). In this workshop we will discuss the use of design theory in management and, conversely, how management science can stimulate research in design theory.

WORKSHOP 2: Design and data-science, led by Akin Kazakci (MINES ParisTech)

Data-science and innovative design are current buzzwords at the global level, attracting growing interest from scientists as well as industry. Strangely, the study of the interrelationship between these concepts is far from being mainstream. This workshop is intended to explore the variety of the potential bridges and knowledge transfer from one domain to another and to sketch out potential research avenues.

WORKSHOP 3: Design and Philosophy of Science led by Anne-Françoise Schmid (chaire TMCI)

In recent years, the study of design has gained momentum towards establishing a scientific foundation of the field. In the meanwhile, philosophy of science has difficulties in overreaching across disciplines in order to apprehend innovative scientific objects. This workshop intends to discuss how design theory can help to understand the evolutions in various fields of science and how various scientific domains can provide foundations for design.

WORKSHOP 4: Design and misbehave! led by Annie Gentès(Télécom ParisTech)

In societies with high conceptive capacity, objects and techniques have multiple identities. This workshop focuses on misbehaving objects that defy our interpretive skills and social norms. Conceived by artists, scientists, or designers, these misbehaving objects unsettle our expectations in terms of social propriety, sleek aesthetics, or political legitimacy. In this workshop we will explore how these objects challenge design theories and education