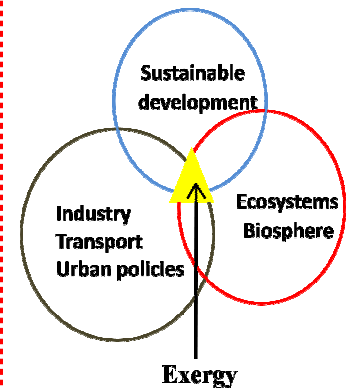




International Conference on EXERGY 17th June 2011

Exergy to define structure and quality of materials, energy, and ecosystems

Université Paris Ouest Nanterre la Défense
Pôle Scientifique et Technologique de Ville d'Avray
Laboratoire Energetics Materials Electromagnetism (LEME)



The global environmental, economical and juridical context of our industrial societies calls urgently for the definition of a sustainable development criteria which would be clear, undisputable, independent of specific fields or lobbies, based on widely accepted physical principles. Standing at the crossing point between physics, engineering, biology and ecology, the concept of exergy displays these properties. It must be understood that energies, processes, materials but also urbanistic and logistic configurations display structure and arrangement whose quality can be quantified by exergy. The aim of this conference is to show that exergy is now used in a large variety of systems and fields for analysis, conception and optimization: energy production and distribution, chemical processing, materials, logistics, urbanism, architecture, industrial and landscape planning and agro-ecosystems and ecology. Exergy gives access to rigorous methodologies and optimization strategies by minimizing materials and energy used at local and global scales. Its use leads to substantial economy. The main objective of the conference is to show that exergy should be the crucial physical quantity of the 21th century.

Organization: **D. Queiros-Conde, L. Grosu, A. Zellou and M. Feidt**

In the context of scientific activities of SFT (Société Française de Thermodynamique and Réseau CARNOT (Programme Energie CNRS)

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Place of Conference: at Nanterre access RER A (10 min) from Paris

Program

8h30 Welcome

9h D. QUEIROS-CONDE, L. GROSU, A. ZELLOU (U. Paris Ouest, LEME)) and M. FEIDT (Univ. Nancy, LEMTA): general introduction
Why exergy should be the physical quantity of the 21th century?

- 9h15-10h Göran WALL (Independent researcher and consultant: <http://www.exergy.se>, Sweden)
Exergy and Sustainable Development
- 10h-10h45 George TSATSARONIS (Institute for Energy Engineering, Berlin)
Exergy and the Improvement of Energy- Conversion Processes
- 10h45-11h15 Eugene SILOW (Institute of Biology, UNESCO Chair of Water Resources, Irkutsk State University, Russie)
Exergy use for ecosystem health assessment
- 11h15-11h45 Alexandru DOBROVICESCU (Université Politehnica de Bucarest)
Exergo-economic analysis and optimization of energy systems
- 11h45-12h15 George DESCOMBES (Cons. Nat. Des Arts et Métiers, Paris)
Application of exergy balances for the optimization of non adiabatic small turbomachines operation
- 12h15-12h45 Wouter LEDUC (Wageningen University, Landscape Architecture and Urban Environmental Technology and Management Group)
The use of exergy on urban scale
- Lunch**
- 14h00-14h45 E. SCIUBBA (Dep^t of Mech. and Aeronautical Engineering, Univ. of Roma 1)
Extended exergy accounting: a resource-based ecological indicator
- 14h45-15h30 Daniel FAVRAT (Ecole Polytechnique Fédérale de Lausanne)
The concept of exergy efficiency in a local law on energy with applications to building
- 15h30-16h00 Dorothée PETE (University of Liège , Laboratoire d'Océanologie)
The use of eco-exergy in oceanology
- 16h00-16h30 Alicia VALERO DELGADO (CIRCE - Natural Resources Division), Saragosse, Spain
From grave to cradle: An exergy approach for accounting mineral resource depletion in LCA
- 16h30-17h Olivier LE CORRE (Ecole des mines de Nantes)
Energetic and exergetic assessment of renewable energy potential in Europe
- 17h-17h30 Riad BENELMIR (LERMAB, Univ. de Nancy)
Exergy based analysis for vehicle thermal design optimization
- 17h 30 Discussion**