



CONFERENCES JOURNALS BOOKS RESEARCH INDEXING FAQ E-LIBRARY HOME

- Main Page
- Call For Papers
- Location
- Chair-Committee
- Deadlines
- Paper Format
- Fees
- SUBMIT A PAPER
- SUBMIT A SPECIAL SESSION
- SEND THE FINAL VERSION
- Conference Program
- Presentation Information
- Call for Collaborators
- Relevant WSEAS Conferences
- REVIEWERS
- CONTACT US

Plenary Lecture

World Energy and Future



Professor M. Kostic
Department of Mechanical Engineering
Northern Illinois University
DeKalb, IL 60115-2854,
USA
Phone: (815) 753-9975 or 753-9979
Fax (815)753-0416
E-mail: kostic@niu.edu
Web site: <http://www.kostic.niu.edu>

[Past Conferences Reports](#)

Find here full report from previous events

[Impressions from previous conferences ...](#)

Read your feedback...

[History of the WSEAS conferences ...](#)

List of previous WSEAS Conferences

Abstract: The two things are certain in not distant future: (1) the world population and their living-standard expectations will substantially increase, and (2) fossil fuels' economical reserves, particularly oil and natural gas, will substantially decrease. The difficulties that will face every nation and the world in meeting energy needs over the next several decades will be more challenging than what we anticipate now. The traditional solutions and approaches will not solve the global energy problem. New knowledge, new technology, and new living habits and expectations must be developed to address both the quantity of energy needed to increase the standard of living world-wide and to preserve and enhance the quality of our environment. However, regardless of imminent shortages of fossil fuels the outlook for future energy needs is encouraging. There are many diverse and abundant energy sources with promising future potentials, so that mankind should be able to enhance its activities, standard and quality of living, by diversifying energy sources, and by improving energy conversion and utilization efficiencies, while at the same time increasing safety and reducing environmental pollution. At present, most of the World energy consumption is supplied by the fossil fuels (about 85%). However, the proven fossil fuel reserves are limited, and if continued to be used at



- Main Page
- Call For Papers
- Location
- Chair-Committee
- Deadlines
- Paper Format
- Fees
- SUBMIT A PAPER
- SUBMIT A SPECIAL SESSION
- SEND THE FINAL VERSION
- Conference Program
- Presentation Information
- Call for Collaborators
- Relevant WSEAS Conferences
- REVIEWERS
- CONTACT US

Plenary Lecture

Uniqueness and Universality of Heat Transfer: Challenges and Opportunities for Improving Heat Transfer Processes - The Quest and Nature of Energy, Heat and Entropy



Prof. M. Kostic
Department of Mechanical Engineering
Northern Illinois University,
DeKalb, IL 60115,
USA
Tel.: (815)753-9975
E-mail: kostic@niu.edu
Web site: www.kostic.niu.edu

- [Past Conferences Reports](#)
Find here full report from previous events
- [Impressions from previous conferences ...](#)
Read your feedback...
- [History of the WSEAS conferences ...](#)
List of previous WSEAS

Abstract: This presentation focuses on philosophical and practical aspects of energy, heat and entropy, with emphasis on reversibility and irreversibility, and a goal to establish the concept of ideal "reversible heat transfer," regardless that heat transfer is a typical irreversible process. Heat transfer, like any other energy transfer, may be achieved from any-to-any temperature level, and in limit be reversible, if temperature of an intermediary cyclic substance is adjusted as needed, using isentropic compression and expansion. The reversible heat transfer limits are the most efficient and demonstrate limiting potentials for practical heat transfer processes.

The heat transfer and thermal energy are unique and universal manifestation of all natural and artificial (man-made) processes, and thus are vital for more efficient cooling and heating in new and critical applications, including energy production and utilization, environmental control and cleanup, and bio-medical applications. Heat transfer is known as typical spontaneous irreversible process where all organized (structural) energies are disorganized or dissipated as thermal energy with irreversible loss of energy potential (from high to low temperature) and overall entropy increase. However, since reversible