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CALL FOR PAPERS

**Abstract Deadline:
8 January 2007**



5TH INTERNATIONAL
ENERGY CONVERSION
ENGINEERING CONFERENCE

25-28 June 2007

Hilton St. Louis at the Ballpark
St. Louis, Missouri

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5TH INTERNATIONAL ENERGY CONVERSION ENGINEERING CONFERENCE



25-28 June 2007

Hilton St. Louis at the Ballpark
St. Louis, Missouri

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View the complete call for papers at www.aiaa.org/events/iecec.



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CALL FOR PAPERS

ABSTRACT DEADLINE: 8 JANUARY 2007

25-28 June 2007 • Hilton • St. Louis at the Ballpark • St. Louis, Missouri

The 5TH INTERNATIONAL ENERGY CONVERSION ENGINEERING CONFERENCE (IECEC)

will be held 25-28 June 2007 at the Hilton St. Louis at the Ballpark, St. Louis, Missouri. The IECEC provides a forum to present and discuss engineering aspects of energy conversion technology, advanced energy and power systems, and devices for terrestrial energy systems and aerospace applications. Papers on the technical aspects of energy conversion in the following topical areas are welcome and encouraged: Energy Policy, Environmental and Historical Perspectives; Energy Conversion Device Technology; Energy Storage Technology; Thermal Management Technology; Fuels, Combustion, and Terrestrial Energy Systems; and Aerospace Power Systems.

The IECEC is hosted by the American Institute of Aeronautics and Astronautics (AIAA), which is joined this year by three participating organizations:

- The Heat Transfer Society of Japan, Advanced Energy Conversion Group;
- The IEEE Aerospace and Electric Systems Society (AESS), and
- The Egyptian Society of Mechanical Engineers

Abstract Submission

Prospective authors are invited to submit a copy of their abstract electronically via the AIAA Web site at www.aiaa.org. This web site will open for abstract submittal starting **10 July 2006**. Abstracts will be due by **8 January 2007**. Authors will be notified via e-mail of paper acceptance by **19 February 2007**, following a technical review by at least two independent technical reviewers. Abstracts may be submitted to any of the technical topic areas listed. Authors will be prompted to enter their paper titles, audiovisual requirements, and contact information (including address and e-mail) for themselves and any paper coauthors; a corresponding author must be selected. Abstracts can then be uploaded in any one of five formats: MS Word, WordPerfect, Text, RTF, or PDF. Both oral papers and poster papers are also solicited. Upon upload of their abstract, authors will be sent a confirmation e-mail providing them with a tracking number and the ability to review their submission and follow its status. Selection of papers will be based on abstracts of no less than 300 words. Authors having trouble submitting abstracts electronically should e-mail AIAA tech support at paper_tech_support@aiaa.org or contact the conference Technical Program Chair.

Young Professionals Presentation Program

Young professionals are sought to participate in the Young Professional Presentation Program that provides young professionals under the age of 35 with the opportunity to present their work at a national AIAA technical conference. This program integrates young engineers into the regular sessions and allows them to give presentations covering continuing and in-process design or research works, in addition to completed projects. The Young Professionals Presentation Program allows for oral presentations only; manuscripts are not required. This program is not subject to the "no paper, no podium" policy, and is fully supported by the AIAA Technical Activities Committee.

Presentation topics for the Young Professional Presentation Program at this conference should derive from topics listed in this call for papers, and should be work with which the presenting engineer is engaged or intimately familiar. When submitting your abstract, please click the "the Young Professional Presentation" box.

To submit your work for consideration, submit a brief (300 words or less) abstract to the Technical Program Chair to be considered. All submission deadlines and policies are according to those specified in the call for papers.

Technology Transfer and International Visa Considerations

Prospective authors are reminded that technology transfer guidelines have extended the time required for review of abstracts and completed papers by U.S. government agencies.

Internal (company) plus external (government) reviews can consume 16 weeks or more. Authors should determine the extent of approval necessary early in the paper preparation process to preclude paper withdrawals or late submissions. If you plan to attend an AIAA technical conference or course held in the United States and you require a visa for travel, it is incumbent upon you to apply for a visa with the U.S. embassy (consular division) or consulate with ample time for processing. To avoid bureaucratic problems, AIAA strongly suggests that you submit your formal application to U.S. authorities a minimum of 120 days in advance of the date of anticipated travel.

CALL FOR PAPERS: TOPICS

ENERGY POLICY, ENVIRONMENTAL AND HISTORICAL PERSPECTIVES

Papers are being sought on the various aspects of energy policy, global energy use, new energy initiatives, the effect of energy production on the environment, and the environmental impact based on the utilization of new or existing technologies. Papers that provide insight on regulations, legislation, and/or actions adopted by individuals, groups, or governments relative to future energy availability and environmental energy issues, including global, regional, local or company policy initiatives are highly encouraged. Papers are also sought that provide a historical perspective of energy conversion technologies, policy and energy use, as well as trends toward the future.

Energy Policy

Energy Independence via Technology/Initiatives
Federal, State and Local Energy Initiatives
Energy Use/Issues for Transportation/Vehicles
Deregulation of Electric Utilities
Emission Regulatory Standards
Energy for Developing Countries

Environmental Impact and Energy Efficiency

Global Energy Production, Use and Transmission
Greenhouse Gas Emission Studies and Policy
Energy Conservation
Impact of Advanced Energy Technologies

Aerospace Power Policy Issues

The Role of Research and Advanced Technology
Use of Nuclear Power Systems in Space
Plutonium-238 Availability for Future Missions

Historical Perspectives

Terrestrial Energy Use and Technology Development
Aircraft Power Technologies and Trends
Space Power Technologies and Trends

ENERGY CONVERSION DEVICE TECHNOLOGY

Technical papers are sought that discuss the details of various types of energy conversion devices, including, but not limited to, the specific devices listed below. Papers should address specific characteristics, processes, and methodologies. Topics may include initial concepts, device component fabrication, modeling, analysis, testing, operation, and applications.

Direct Energy Conversion Devices and Components
AMTEC
Fuel Cells
Magnetohydrodynamics (MHD)
Photovoltaic Devices
Thermionics
Thermoacoustic Engines
Thermoelectrics
Thermophotovoltaics (TPV)

Thermodynamic Devices, Components and Systems

Advanced Cycles
Brayton and Rankine Cycles
Heat Engines and Heat Pumps
MEMS
Stirling Engines

ENERGY STORAGE TECHNOLOGY

Technical papers are being sought that discuss all primary or secondary devices or mediums utilized to store, charge, recharge, or regenerate a source of energy for immediate or delayed utilization. Of great interest are papers discussing innovative methods, materials, and processes, including lessons learned. Topics may include initial concepts, device component fabrication, analysis and

testing, and energy storage system testing, operation, and applications.

Capacitive Energy Storage

Supercapacitors
Ultrapacitors

Flywheel Energy Storage

Device Components
System Operation, Test and Analysis

Primary Batteries

Lithium Cells and Advanced Batteries
Active Primary Batteries
Reserve Batteries
Thermal Batteries

Rechargeable Cell and Batteries

Lithium Ion
Lithium Polymer
Nickel Cadmium
Nickel Hydrogen
Nickel Metal Hydride
Electric Vehicle Batteries
Special Purpose Batteries

Regenerative Fuel Cells

Superconducting Magnetic Energy Storage
Applications of Nanotechnology in Energy Storage

THERMAL MANAGEMENT TECHNOLOGY

Technical papers are being sought that illustrate the delicate balance of temperature, results of practical applications, tests, simulations, and R&D initiatives of thermal management. Papers discussing operational performance, current limitations, and study results of thermal management components and systems for aircraft, spacecraft and terrestrial applications are encouraged.

Heat Transfer and Transport

Heat Exchangers
Heat Pipes and Capillary Pumped Loops
Phase Change Heat Transfer

Thermal Energy Storage

Advanced Materials
TES Applications and Issues

Thermal Systems and Components

Cooling Electronic Components
Cryogenic Cooler Systems
Modeling and Simulation of Thermal Systems
Power Systems Cooling
Solar Collector Thermal Design
Nanotechnology for Thermal Systems

Thermal System Applications and Unique Environments

Building Heating and Cooling
Waste Heat Utilization
Thermal Control of Machinery and Electronics
Aircraft
Spacecraft
Lunar/Martian Surface and Deep Space Applications

FUELS, COMBUSTION, AND TERRESTRIAL ENERGY SYSTEMS

Technical papers are being sought that address the latest research, developments, and viable new technologies applicable to fuels, combustion research and terrestrial power systems. The primary focus of this topic area is on the development, application, and operation and power systems for terrestrial systems. This topic area focuses on, but is not limited to, the following areas:

Combustion

Advanced Designs
Waste Fuels
Opportunity Fuels
Pollution
Chemical Kinetics
Diagnostics
Modeling and Simulation

Alternative Fuels

Biomass
Hydrogen
Ammonia

Energy Efficient Vehicle Technology

Electric and Hybrid Vehicles
Alternative-Fueled Vehicles

Terrestrial Energy Systems

Fossil Fuels
Geothermal
Nuclear and Advanced Nuclear
Photovoltaic and Solar Thermal Systems
Wind and Tidal Systems
Building Energy

Transmission, Distribution, and Utilization

Power Transmission Technology
Cogeneration
Cryogenic Systems
Distributed Generation
Utility Power Electronics

Mobile and Military Power Systems

Marine Energy Systems
Electric Ship Components and Systems
Advanced Naval Power Systems
Transportable Military Power
Small Portable Power Designs

Applications of Nanotechnology for Terrestrial Systems

AEROSPACE POWER SYSTEMS

Technical papers are being sought on power system and subsystems developed specifically for aerospace applications. Papers may include concepts, development initiatives, testing, simulations, and mission requirements addressing the broad range of power for aircraft and space applications. Papers discussing aerospace-specific power technologies, operational performance, requirements, and system designs are highly desired. Topics include, but are not limited to, the following:

Future Aerospace Power Requirements

Trends in Power Technology for Aircraft
Power Technology for Space Exploration

Power System Designs and Operational Performance

Aircraft
Space Station
Spacecraft Solar
Spacecraft Radioisotope
Space Environment Interactions

Aerospace-Specific Components and Systems

Aircraft and UAV
Balloon Electric Power
Directed Energy Power
Missile Power Systems
Spacecraft Solar Arrays
Radioisotope Power Systems
Space Nuclear Reactors
Solar Thermal Power for Spacecraft
Spacecraft Tether Power Systems
Wireless Energy/Solar Transfer
Power Satellites
Lunar and Martian Surface Power Systems

Electrical Power System Components and Distribution

Power Management and Distribution
High Voltage Systems
Power Electronics
Superconducting Generators

Power System Modeling, Analysis and Simulation

Terrestrial Applications of Aerospace Technology
Weapon Power Systems and Studies
Applications of Nanotechnology for Aerospace Systems