

# **SPESIF 2011 & COFE4**

## **Speaker Papers**

### **PLENARY I**

#### **NEW ERA IN SPACE RESEARCH AND TECHNOLOGY**

**NASA Innovative Advanced Concepts**

John M. (Jay) Falker

**NASA Game Changing Technology**

Harry Partridge

**Examples of Advanced Concept and Technology Development in Australia**

H. David Froning

### **PLENARY II**

#### **FUTURE ENERGY**

**Qualification and Quantification of Telomeric Elongation Due to Electromagnetic Resonance Exposure**

Scott C Kelsey

**Ion Conducting Materials; from Terrestrial Energy Conversion and Storage to Space Based Resource Utilization and Life Support**

Eric D. Wachsman

### **LECTURE SERIES**

**A Matter of Definition**

Greg Volk

**Advanced Space Nuclear Reactors from Fiction to Reality**

Liviu Popa-Simil

**The Morningstar Energy Box**

Paul A Murad, Morgan J Boardman and John Brandenburg

### **BANQUET DINNER SPEAKER**

**The Frontiers of Energetics and Space Propulsion; The “Responsibly Imaginable”**

Dennis M. Bushnell

# **8th SYMPOSIUM ON NEW FRONTIERS IN THE SPACE PROPULSION SCIENCES**

## **ADVANCES IN CONTEMPORARY PROPULSION SCIENCES & ADVANCED TECHNOLOGIES, CONCEPTS, AND TECHNIQUES FOR SPACE APPLICATION**

### **VASIMR Human Mission to Mars**

Andrew V. Ilin, Leonard D. Cassady, Tim W. Glover and Franklin R. Chang Diaz

### **Sling-on-a-Ring: Structure for an Elevator to LEO**

Andrew Meulenberg and Timothy Poston

### **Electromagnetic Catapult Assisted Horizontal Launch**

George Scelzo, William Dawson, Ken House and Ron Litchford

### **Nano-hetero structure applications in beamed power and space energy harvesting**

Liviu Popa-Simil

### **Combined hybrid nuclear system for energy and propulsion**

Liviu Popa-Simil

### **Hydrogen Storage Methods for Microthrusters**

Xiaoling Yang, George H Miley, Nie Luo, Barbara Betti and Francesco Nasuti

## **FRONTIERS IN PROPULSION SCIENCE; THEORIES, MODELS AND CONCEPTS**

### **Vortex Formation in the Wake of Dark Matter Propulsion**

Glen A Robertson and Mario J Pinheiro

### **The Chameleon Hypothesis, Contextual Cosmos, and Prospects for Novel forms of Energy Generation**

Don Reed

### **Physics of Extreme Gravitomagnetic and Gravity-Like Fields for Novel Space Propulsion and Energy Generation**

Walter Dröscher and Jochem Hauser

### **Reverse Engineering Podkletnov's Experiments**

Benjamin T Solomon

### **Theoretical and Experimental Searches for the Podkletnov Effect**

Hamilton Carter

## **FRONTIERS IN PROPULSION SCIENCE; EXPERIMENTAL RESULTS**

### **On the Nature of the Propulsive Force of Asymmetric Capacitors in the Atmosphere**

Alexandre A Martins (Student) and Mario J Pinheiro

### **New Directions in Electromagnetism for Propulsion and Power**

H David Froning and Terence W Barrett

### **Possible Mach Effects in Bodies Accelerated by Non-Uniform Magnetic Fields**

Nembo Buldrini

### **Mach Effects: Recent Experimental Results**

James F Woodward

### **Electromagnetic Radiation Experiments with Transmitting, Contra-Wound Toroidal Coils**

H David Froning, George W Hathaway and Blair Cleveland

**On the Propulsive Force Developed Asymmetric Capacitors in a Vacuum**

Alexandre A Martins (Student) and Mario J Pinheiro

**Progress in an Antigravity Mechanism using rotating masses**

Christopher Provatidis

**NEW DIRECTIONS IN ASTROPHYSICS/PARTICLE PHYSICS**

**Nuclear and Crystal State Aspects of Overlapping Holographic Phase Patterns**

Bernd Binder

**A New Model for Matter, Space and Energy**

Mark AB Garstin

**Recurrent Anholonomy in Curved Space Navigation Solved by the Riemann Zeta Function**

Bernd Binder

**UNCONVENTIONAL PHYSICAL PRINCIPLES AND GRAVITATIONAL MODELS**

**Experimental and Theoretical Progress on the GEM Theory**

John E Brandenburg

**Consequences of Unusual Behavior in Einstein's Field Equations for Advanced Propulsion Schemes**

Paul Murad

**The Voyager Anomaly and the GEM theory**

John E Brandenburg

**An Experiment in Synchronicity**

Shelley Thomson

**Replicating Pulsar Behavior to Create a Future Space Propulsor**

Paul Murad

**FAR TERM SPACE TRANSPORT/ENVIRONMENT MODELS AND THEORIES**

**Can the Universe be Represented a Superposition of Space-Time Manifolds?**

Raymond Jensen

**Study of Gravity (Part 1) (Part 2)**

Mike Gamble

## **3rd SYMPOSIUM ON ASTROSOCIOLOGY**

### **DEFINITION, SCOPE, AND RELEVANCE/ASTROSOCIOLOGY IN THE CLASSROOM**

#### **Report on the Progress of Astrosociology**

Jim Pass

#### **Negotiations between Utopia and Dystopia in Iain M Banks's Culture Sequence**

Simone Caroti

### **SCIENCE FICTION AND SCIENTIFIC ACTUALITY**

#### **Space and the Evolution of Political Identity in Science Fiction**

Laura M Delgado (Student)

### **SPACE POLICY AND SPACE LAW IN A SOCIETAL CONTEXT**

#### **The Nexus between Law and Astrosociology**

Christopher Hearsey

### **SPACE SOCIETIES/THE SETTLEMENT OF SPACE ENVIRONMENTS**

#### **Astrosociology and the Capacity of Major World Religions to Contextualize the Possibility of Life Beyond Earth**

Eric M McAdamis

### **SPACEFARING SOCIETIES**

#### **An Astrosociological Perspective on Space-Capable vs Spacefaring Societies**

Jim Pass

### **MEDICAL ASTROSOCIOLOGY**

#### **Human Motivations for Long-Term Confined Habitation in Remote High Risk Areas & Training: An Astrosociological Approach**

Melvin S Marsh (Student) and Vadim Y Rygalov

#### **Deviance in Space Habitats: A Preliminary Look at Health and Safety Violations**

Jim Pass

### **OVERVIEW EFFECT**

#### **Analyzing Distinctive Elements in Astrosociology: the Interplay between Ecologies and Environments**

Christopher Hearsey

**SPACE AND SOCIETY: A CULTURAL HISTORY OF THE SPACE AGE, 1900-2009**

**Space exploration: The dreams of the first half of the century vs the reality of the second half**

Bob Zimmerman

**The Death of Rocket Science in the 21st Century**

Glen A Robertson and Darryl W Webb

**Identifying Sociological Factors for the Success of Space Exploration**

Charles A Lundquist

**How We Remember Apollo**

Roger D. Launius

## **2nd SYMPOSIUM ON HIGH-FREQUENCY GRAVITATIONAL WAVES**

**Estimate of Diffraction from Gaussian Beam in Li-Baker HFGW Detector**

R Clive Woods

**The Li-Baker High-Frequency Gravitational Wave Detector**

Robert M L Baker, Jr

**Celeration parameter  $Q(z)$  and the Role of Nucleated GW Gravition Gas in the Development of Dark Energy Alternatives**

Andrew Beckwith

**Can a Massive Graviton be a Stable Particle?**

Andrew Beckwith

# **4th CONFERENCE ON FUTURE ENERGY**

## **SOLAR AND SPACE SOLAR POWER**

### **Terrestrial Micro Renewable Energy Applications of Space Technology**

Narayanan Komerath

### **Sandwich Module Development for Space Solar Power**

Paul Jaffe

## **ADVANCED NUCLEAR ENERGY**

### **Modeling of Selected Ceramic Processing Parameters Employed in the Fabrication of $^{238}\text{PuO}_2$ Fuel Pellets**

R. A. Brockman, D. P. Kramer, C. D. Barklay, D. Cairns-Gallimore, J. L. Brown, J. C. Huling and C. E. Van Pelt

### **Enhanced Singular Wave Reactor for Surface Power**

Liviu Popa-Simil

### **Extensions to Physics: Low-Energy Nuclear Reactions**

Andrew Meulenberg and K P Sinha

### **Deuteron Driven Fast Ignition of Pre-compressed Fuel: An Estimation of Energy Enhancement**

George H Miley, Xiaoling Yang, Kirk A Flippo, Heinrich Hora

### **The Progress of Low Energy Nuclear Reaction Study at University of Illinois at Urbana-Champaign**

Xiaoling Yang, George H Miley, Heinrich Hora

### **Conventional physics can explain cold fusion excess heat**

Scott R. Chubb

## **EXPERIMENTAL DEVICES**

### **A Hyper-efficient Inverter Driven By Positive EMF In Combination with Transient Phenomenon**

Osamu Ide

### **Water Electrolyzers and Zero-Point Energy**

Moray B King

### **Experiments with Coler Magnetic Current Apparatus**

Thorsten Ludwig

## **OTHERS NOT DEFINED ABOVE**

### **The Flow of Energy**

Frank Znidarsic and Glen A Robertson

### **Department of Energy (DOE) R&D Programs**

Dave Goodwin

# **2<sup>ND</sup> MEETING ON FUTURE DIRECTIONS IN SPACE RESEARCH AND TECHNOLOGY**

## **ENABLING TECHNOLOGIES FOR SURFACE SCIENCE**

### **Breakthrough X-ray Analysis Tool for Unprepared Samples**

Z. Arzoumanian, P. E. Clark and K. Gendreau

### **Lunar Surface Thermal Radiator: Performance Evaluation and Thermal Analysis**

Ching-fen Tsai, John Tran, Julian Prabhu, and Sri K Iya

### **Small Cold Temperature Instrument Packages**

P. E. Clark, P. S. Millar, P. S. Yeh, S. Feng, D. Brigham and B. Beaman

### **A New Paradigm for Robotic Rovers**

P. E. Clark, S. A. Curtis and M. L. Rilee

## **TRANSFORMATIONAL TECHNOLOGIES TO EXPEDITE SPACE ACCESS AND DEVELOPMENT**

### **LEO-Ring-Based Communications Network**

A. Meulenberg and Tat-Chee Wan

### **Enabling Exploration Through Automated Manufacture**

Jeremiah J Hansen

### **A Development and Test Program for the Magnetically Inflated Cable (MIC) Large Space Structures System**

James Powell, George Maise and John Rather

### **A Development and Test Program for the Generation-1 Maglev Launch System**

James Powell, George Maise and John Rather