

A. 8th SYMPOSIUM ON NEW FRONTIERS IN THE SPACE PROPULSION SCIENCES

Program Chair

Glen A. Robertson

IASSPES
265 Ita Ann Ln.
Madison, AL
(256) 694-7941
gar@ias-spes.org

Program Co-Chair

R. Clive Woods

102A Department of Electrical
and Computer Engineering
Louisiana State University
Baton Rouge, LA
(225) 578 5243
cwoods@lsu.edu

This symposium pertains to the advancement of the space propulsion sciences from current technologies to emerging concepts and theories. The symposium is broken into the following Five Topic Areas that cover contemporary propulsion sciences, technologies and techniques for short-term objectives supporting near-term space initiatives for Earth, in-orbit, Moon and Mars-based propulsion and power systems over the next 30 years; enhancement of the feasibility of future space propulsion systems; new frontiers in the space propulsion sciences comprising ideas, concepts, experiments, theories and models; and approaches that could lead to new directions in space travel, exploration, astrophysics and particle physics with applications to propulsion, power or communication; or to help combine these areas of science with the space propulsion sciences toward new frontiers in science.

A01. Advances in Contemporary Propulsion Sciences

Chair: John Cole, Huntsville, AL, (256) 882-0492, john.cole.hsv@gmail.com.

Co-Chair: TBD

Papers are solicited that examine advances in the diverse arena covering contemporary propulsion sciences. This discipline involves advances in chemical propulsion as well as hybrid rockets, beam energy systems, electric and magnetic thrusters and launchers, magnetic, plasma and solar sails. Other worthwhile concepts of interest that are innovative and alternative space propulsion approaches and those have been tested and shown feasible within currently accepted physical laws are also of interest. This section focuses on: New Advances in Propulsion Technology, Advanced Propulsion Concepts, and Experimental Results.

A02. Advanced Technologies, Concepts, and Techniques for Space Application

Chair: Chuck Suchomel, USAF WPAFB, OH, 937-904-8653, charles.suchomel@wpafb.af.mil

Co-Chair: TBD

Papers are solicited that examine advances in technologies and techniques for enhancing contemporary propulsion systems as well as other technologies required for space travel and exploration. This discipline involves advances in power, communication and other technologies or other innovative and alternative approaches that are testable within engineering accepted limits as well as those concepts that may be on the edge of current engineering realities. This section focuses on but is not limited to: Advanced Power Concepts, Advanced Communication Concepts, Other Technological Concepts and Techniques for Space Application, and Experimental Results.

A03. Frontiers in Propulsion Science

A03.1. Theories, Models and Concepts

Chair: Martin Tajmar, Austrian Research Centers GmbH - ARC, Seibersdorf, Austria, +43-50550-3142,
martin.tajmar@arcs.ac.at

Co-Chair: Ben Solomon, Interstellar Space Exploration Technology Initiative, P.O. Box 831, Evergreen, CO 80437, 303-618-2800; benjamin.t.solomon@iSETI.us

Papers are solicited that examine models and theories that could provide new insights or extend theoretical concepts and models toward the advancement of the gravitational and inertia sciences with some focus on new propulsive methods. These theoretical concepts and models should be governed by known physical laws (although perhaps in embryonic form or not yet formally well-established) and should be testable by current or foreseeable scientific and/or engineering techniques. Examples of technologies to be examined in these sessions include (but are not limited to): interaction of gravitation and superconductors, propulsion using novel means such as zero-point fields, quantum entanglement, novel propellantless propulsion techniques and other concepts of interest.

Papers should provide the theoretical groundwork for future space travel and/or exploration beyond the bounds possible using the current propulsion sciences, pushing their development towards new frontiers in the propulsion sciences, and so should stress the practical consequences of the work or concentrate on determining the limitations of contemporary scientific and technological approaches and explaining how such limitations may be overcome by using new, embryonic, evolving, disruptive, and enabling, technologies. Concepts can be either mathematical or speculative and should include rigorous, logical, scientific support and plausible assumptions to validate the fundamental aspects.

A03.2. Experimental Results

Chair: James Woodward, California State University, Fullerton, CA, 714-278-3596, jwoodward@fullerton.edu

Co-Chair: TBD

Papers are solicited that report on the experimental results or possible experimental techniques related to theoretical concepts and models in the basic research realm of the propulsion sciences, to include experiments related (but are not necessarily limited) to interaction of gravitation and superconductors, quantum entanglement, propulsion using novel means such as zero-point fields, and novel propellantless propulsion techniques. The experiments discussed should provide a better understanding of these concepts, either pro or con, and must provide suggestions for further work indicating clearly the likely future direction of the work.

A04. Toward New Directions in Astrophysics/Particle Physics with application to Propulsion, Power or Communications

A04.1. New Directions in Astrophysics/Particle Physics

Chair: Bernd Binder, Quanics, Salem, BW, Germany, ++497553827390, binder@quanics.com

Co-Chair: TBD

Papers are solicited that examine areas in Astrophysics and Particle Physics that could provide new directions in propulsion, power or communication for space application, and focus on Astrophysics or Particle Physics Concepts, New Cosmological or Matter Models, Experimental Standards, and Experimental Results. These papers should not be general physics papers, but should instead address problems and resolutions thereof in propulsion, power or communication in terms readable by practicing professional engineers. Astrophysics/Particle Physics papers written with an engineering focus and application are particularly encouraged.

In papers covering a concept/theory/model, authors must indicate how these could enhance the area of propulsion, power or communication and if a new concept/theory/model authors must discuss experimental application(s). If

necessary, the experimental discussion may be presented as a separate paper to allow for adequate discussion and description of the proposed experiment.

A04.2. Unconventional Physical Principles and Gravitational Models

Chair: Paul Murad, Vienna, VA, (703) 759-2028, ufoguypaul@yahoo.com

Co-Chair: John Brandenburg, ORBITEC, Madison, WI, 608-229-2790, brandenburgj@orbitec.com

Papers are solicited that seriously examine physical, gravitational, cosmological, or atmospheric anomalies and determine whether they are physically meaningful or not for deriving new understanding regarding developing an advanced propulsion scheme from an analytical or experimental perspective. This could include unusual physical principles such as converting angular momentum into linear momentum in a space drive, outlining the theoretical requirements as well as investigating potential proofs that demonstrate the existence of gravitational waves, the Gertsenshtein effect, the coupling of torsion with gravitation and electromagnetic fields, identifying gravitational vortices, new types of nuclear power generation such as aneutronic reactors, or finding new gravitational models that do away with the need for negative mass and energy. This also includes understanding dynamics of pulsars or neutron stars in the context of identifying new physical phenomenon that may create a star drive.

A05. Far Term Space Transport/Environment Models and Theories

A05.1. Far Term Space Transport and Environment Models & Theories

Chair: TBD

Co-Chair: Ray Lewis, Pennsylvania State University, Boalsburg , PA, 814-466-6187, r3l@psu.edu

Papers are solicited that provide new models and theories or additional information covering older models and theories in the area of space transport, power production systems, including environmental effects. Papers should generally be related to faster than light-speeds, warp-drives, wormholes and other areas that could provide a better understanding of space transport mechanisms beyond our current knowledge and understanding. Concepts can be either mathematical or speculative as well as include rigorous, logical, scientific support and plausible assumptions to validate the fundamental aspects.

A05.2 Conceptual Models and Theories Promoting Alternative Space-times

Chair: Gregory V. Meholic, The Aerospace Corporation, El Segundo, CA, 310 336-2919, Greg.V.Meholic@aero.org

Co-Chair: TBD

Papers are solicited that explore conceptual models and theories regarding the existence of an alternative space-time or space-like realm necessary for faster-than-light (FTL) travel or manipulation of the space-time metric. Concepts can be either mathematical or speculative and should include rigorous, logical, scientific support and plausible assumptions to validate the fundamental aspects. This arena also examines the characteristics of alternate dimensions and hyperspace as well as exploring the application of these ideas to gravitation theory, cosmology or quantum physics.