

W1. WORKSHOP ON FUTURE ENERGY SOURCES

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The Workshop on Future Energy Sources seeks to integrate current, emerging and future energy sources for space exploration with Earth applications, including their issues of public interest.

Papers and presentations are solicited that examine basic research and theories for conventional (e.g., fusion), non-conventional (e.g., bio-fuels) and more speculative future energy sources (e.g., quantum fluctuations, dark energy, gravity, wide frequency EM, etc.).

Papers and presentations are also solicited that address the fundamental high-impact issues of future energy sources, such as their economics versus alternatives, breakthroughs in energy source or conversion efficiency and sustainability.

Examples of the above include (but are not limited to):

- Future Earth based bio-fuels (from various plants) could eventually find their way into terra-forming of Mars or other planets and moons or in planet/moon base labs for creating usable energy (fuels and oxygen) for both spacecraft and ground based systems. (These bio-fuels can also be extended to in-space medical purposes.)
- Space Solar Power (SSP) system for future terrestrial usage can be extended to other forms of in-space applications.
- New or re-engineered fusion or fission devices could provide safe nuclear energy sources for heating and electrical power for Earth and space applications. Of specific interest, but not limited to are advanced fusion or fission energy concepts for enabling detailed exploration and utilization of the lunar surface.
- More speculative future energy sources that stretch our imaginations and could fundamentally rewrite the history of Earth and space energy systems. Concepts and ideas should be derived from experimental or accepted scientific observations from peer-reviewed sciences such as Astronomy and be rooted in theoretical physics or a variation thereof. Theoretical papers and presentations should discuss the means to experimentally test them - due to the paper size limitation; this can be done in two papers/presentations.

Sessions will be developed from the submitted papers and presentations into the following focused areas:

- Scientific and technology foundations,
- Basic research areas originating from government, industry, academia and private research programs, and
- Public education.

The workshop chairs have final authority on what is presented in their workshop. It is suggested that authors wishing to submit papers on the "More speculative Future Energy Sources" discuss this with the workshop chairs before submitting their abstract to SPESIF.