

Exploration of Advanced Propulsion Concepts and Control

Power Electronics & Electric Machinery

Transportation

U.S. Department of Energy
Energy Efficiency and
Renewable Energy Program
Oak Ridge National Laboratory



FOR THE 21ST CENTURY

Background

Under the direction of the U.S. Department of Energy (DOE) Office of Transportation Technologies, the Oak Ridge National Laboratory (ORNL) is exploring novel advanced propulsion schemes or energy sources that might have the potential to greatly reduce the need for onboard energy or thermal sources typically required for transportation purposes.

To assist the DOE in allocating resources to high risk proposals, ORNL has performed preliminary analyses of several concepts.

One concept is the "Woodward Drive" whereby a theory and experimental device is claimed to produce a rocket engine requiring no fuel. To conserve momentum in this concept it is claimed that momentum is extracted from the vacuum from an alleged application of Mach's principle.

Another concept is the "Motionless Electromagnetic Generator" (MEG), which purports to extract energy from the vacuum. In this instance an embodiment has been claimed to be constructed, whose output exceeds its input power by a factor of 10. A theoretical foundation for this effect has been asserted.

A third concept is a Searl's Electromagnetic Generator (SEG), which is alleged to produce a mass reduction and several anomalies appearing to contradict the second law of thermodynamics.

A fourth concept is nuclear isomeric energy storage, a novel method of tricking a nuclear isomer to decay rapidly releasing enormous amounts of energy. From this effect it is claimed that a storage device with huge specific power can be produced.

Success Story

ORNL Developments

ORNL found that Woodward's theory contained algebraic errors and produced a non-zero force only because variation of the mass was not considered in the averaging process. Examination of the theory revealed that, among other things, Woodward neglected local gravitation forces, which are 10^{27} times greater than those of non-local forces. Inconsistencies were found which, when corrected, removed the equation that led to his "wave equation." Finally, ORNL found an alternate interpretation using only classical mechanics to explain Woodward's alleged validating measurements.

After observing a MEG demo we concluded that the MEG device always follows the unmodified first law of thermodynamics. Subsequent to this conclusion ORNL and ORO were excluded from participation in validation of the concept.

ORNL is exploring subsystems (see figure), which may help explain the unusual results observed during operation of a Searl's generator.

ORNL has found that restoring a nuclear isomer back to high energy states (recharging) is difficult to the extent that this will be the focal point in any future research.

Commercialization

If any of the above mentioned devices prove feasible it would change the world. Any commercial enterprise with rights to this technology would be larger than any present corporate entity.

Benefits

- Helps DOE determine where resources may have greatest benefit.
- Successful applications of a concept would
 - Revolutionize ground and air transportation
 - Enable far space travel
 - Solve America's current energy crises



A subsystem for examining possible Searl's effects

For more information on how ORNL is helping America remain Competitive in the 21st century, please contact:

Donald J. Adams
Director, Power Electronics and
Electric Machinery Research Center
Engineering Science and Technology
Division
Oak Ridge National Laboratory
(865) 946-1321
adamsdj@ornl.gov

November 2001