



***Notice of Intent (NOI)***

***Short Title: “EM Thruster using the GEM Theory”  
“Investigation EM Thruster Results using the GEM (Gravity-Electro-  
Magnetism) Theory”***

Our proposal is to investigate evidence of thrust generation by enclosed chamber electromagnetism in the NASA Eagleworks EEM thruster using the GEM theory of Gravity-EM unification.

*EM Thruster Results:* Data from the Eagleworks EM thruster, plus other experiments, at high and low power indicates net thrust forces can be generated by firing EM radiation into specially shaped resonant chambers. The results at high power indicate a thrust to power ratio of approximately 0.2N/kW. Such thrust-to-unit-power ratios will allow a 1MW Solar powered craft to reach Mars from Earth in approximately 1 month. There are strong scientific and practical implications:

- The generation of net device thrust by firing EM radiation into a specially shaped chamber indicates direct alteration of spacetime geometry by EM radiation is possible, with momentum transfer from the device to nearby large masses such as the Earth, Moon and Sun. Such momentum transfer to nearby masses from EM fields via spacetime is already familiar in the GR (General Relativity) analysis of the bending of light rays by the gravity field of a star or planet. Standard EM theory indicates no net force can be generated, therefore the net forces measured must arise from nonlinear interactions between EM fields and spacetime.
- By Analogy with fluid dynamics, inclusion of the nonlinear Eulerian derivative term in the equation for body forces in fluid flow allows to generate lift forces from aircraft wings. The fluid flow leads to the Bernoulli Equation. Blowing air at an oddly shaped planform generates lifting forces at right angles to the net air flow, in contradiction to ‘common sense’. This effect allows a coupling between macroscopic flow velocity, responsible for dynamic pressure, and microscopic molecular velocities that lead to static pressure, with the result that human flight is possible. By analogy, we see the same effects of the NASA EEM thruster. The Quantum EM nature of vacuum spacetime allows a “Vacuum Bernoulli Effect” whereby flows of macroscopic EM momentum created by technology can directly shape the microscopic EM fields making up vacuum spacetime-leading to gravity forces.
- *The GEM theory interpretation of the EM thruster results:* GEM is a successful new theory unifying the two long-range forces of nature: EM and Gravity, which has also offers a partial explanation of occurrence of the two subatomic-range forces: Strong and Weak.

Morningstar has expertise for investigating new physical principles and future space propulsion schemes. We will use a partnership with the Joint Institute for High Temperatures, in Moscow who has investigated energy-conservation systems for propulsion. We will also use expertise from the University of Adelaide, Australia. This proposed effort will involve \$250 k for a duration of 18 months. This proposal has a low risk of failure and a high risk of success. We look forward to face and resolve the mutual challenges required by NASA’s missions and objectives.

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