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EXPERIMENTAL TESTS OF THE MACH EFFECT THRUSTER.

Abstract

The Mach Effect Thruster (MET) is a device which employs Mach's principle and utilizes fluctuations in the internal energy of an accelerating object to produce a steady linear thrust. Mach's principle states that the inertia of a body is due to the gravitational interaction with all matter and energy flow in the universe. These accelerating objects are capacitor stacks of PZT (lead zirconium titanate) or PMN (lead manganese niobate) discs, which are powered by an AC voltage. The average frequency used is between 30-40KHz.These capacitors are bolted to a heavy brass mass and push against this to create thrust of the order of micro Newtons (N). This thrust can be used as a propulsion method and has literally zero propellant. No fuel is used apart from the small voltage used to maintain the internal energy imbalance and the electrostriction in the discs. We wish to present new results comparing the older PZT capacitor stacks with the newer PMN capacitors. We are currently (Feb 2013) in the process of purchasing the PMW powder to be compressed/sintered into discs, for use in the experiment. The results I will present will therefore be brand new, never before published. If due to some unforeseen circumstance we do not have the results ready, I will present new data from the PZT discs we already have and which are already operational. We have been trying to increase the thrust to match what is now possible with ion drives. I will also describe a null test we performed on the stack to show that all vibration and heating noise has been successfully removed from the data. Experimental apparatus based on a very sensitive thrust balance will be described and we shall explain the experimental protocols employed to search for Mach Effects.

The theory has been presented elsewhere please see my coauthors webpage for the latest theory and experimental data.

http://physics.fullerton.edu/ ∼jimw/ASPW2012.pdf

http://physics.fullerton.edu/ ∼jimw/JPC2012.pdf