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Author: Ms. Catherine Kari Derow
United Kingdom, cathykd@gmail.com

SYSTEMS FOR SPACECRAFT PROPULSION IN BOTH ATMOSPHERIC AND DEEP SPACE CONDITIONS

Abstract

In this paper, I would like to propose two systems for spacecraft propulsion: (i) One based on conventional combustible fuel, suitable for conditions where there is an atmospheric pressure to thrust against, including launch, landing and other situations, (ii) A solar powered system, suitable when craft are traveling in deep space.

The first system is based on a computationally adjusted fuel mixture, as well as similarly controlled combustion temperature and gas flow into the engine(s) to allow optimal thrust and fuel consumption engine properties. The fuel is to be derived in a catalyzed, pressurized system from plant-derived alcohol, based on Le Chatelier's principles. This process may yield useful heat energy and beneficial products, such as 8-Carbon fuel material, and may be carried out within the craft as well as on purpose-built landmass based installations.

The second system proposed employs a heat-cold differential system created by heating water within the craft insulated from the lower temperature of the deep space environment. Water, light and heat could also serve to maintain life on board the craft. The heat may be derived from light-energy harvesting panels absorbing heat energy from bodies emitting light in the craft's vicinity, fuel creation and combustion processes, as well as other heat-emitting processes on board the craft. The mechanism of propulsion involves the thrust created by heat radiation, when the heated water is circulated to emit heat via the craft surface, against the extreme cold of deep space.

This system could be computationally controlled for optimal modulation of rate of travel given time, safety and other mission objectives and any other pertinent factors. There would be capacity for personnel to enter, using, a structured interface, new conditions, such as atmospheric composition and pressure with respect to landings in novel types of atmosphere, so that fuel-type and other factors could be adjusted.

The parameters for the computationally regulated propulsion systems would have been derived via in silico simulation of conditions both empirically known and hypothetical.