

SPACE PROPULSION SYMPOSIUM (C4)  
Advanced and Combined Propulsion Systems (8)

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SOLAR ELECTRO REACTION ENGINE

**Abstract**

This paper presents a new design of spacecraft engines. In comparison to ionic engines in the same size and mass, proposed engine produce power about ten times more. The engine's performance has tested successfully in both water and air without generating any extra heat while working. The whole system is controlled by computers and electrical kits. The produced electrical energy is used to make a mechanical pulse that results in propulsion thrust. In comparison with limited fuel of chemical engines, modern spacecrafts with this new engine can use unlimited solar energy to produce electricity using photovoltaic systems and store in batteries which can be used as a supplementary source of energy. Also, there is no need to do costly and hazardous transmitting of fuel and oxidizer to space.

This engine can be built in different dimensions. Small dimension engine can be used in EVA space suits to make space man able to walk around space and do his/her tasks. Medium dimension engine, usually used in space vehicle to do things like collecting space trash and fixing satellites. Big dimensions engine is used to tug satellites which are coming to orbit by rockets and bring them to upper orbits.