



Compass Final Report: Radioisotope Electric Propulsion (Rep) Centaur Orbiter New Frontiers Mission (Paperback)

By -

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.Radioisotope Electric Propulsion (REP) has been shown in past studies to enable missions to outer planetary bodies including the orbiting of Centaur asteroids. Key to the feasibility for REP missions are long life, low power electric propulsion (EP) devices, low mass Radioisotope Power System (RPS) and light spacecraft (S/C) components. In order to determine the key parameters for EP devices to perform these REP missions a design study was completed to design an REP S/C to orbit a Centaur in a New Frontiers (NF) cost cap. The design shows that an orbiter using several long lived (approx.200 kg xenon (Xe) throughput), low power (approx.700 W) Hall thrusters teamed with six (150 W each) Advanced Stirling Radioisotope Generators (ASRG) can deliver 60 kg of science instruments to a Centaur in 10 yr within the NF cost cap. Optimal specific impulses (Isp) for the Hall thrusters were found to be around 2000 s with thruster efficiencies over 40 percent. Not only can the REP S/C enable orbiting a Centaur (when compared to an all chemical mission only capable of flybys)...



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