

ASTRODYNAMICS SYMPOSIUM (C1)
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ANALYSIS OF AN ALL ELECTRICAL PROPULSION ACTUATED ATTITUDE AND ORBIT
CONTROL SYSTEM FOR GEOSYNCHRONOUS ORBIT**Abstract**

Placing a commercial geosynchronous satellite in orbit is an effort associated with financial commitments that range in the hundreds of million Euros. The critical parameter is cost per payload mass and year and there is an ever ongoing search for ways to improve this ratio. One cost driver any space mission is complexity. All systems have to be included in the design, procured and interfaced commonly made redundant and all these tasks drive costs. Using thrusters for attitude control instead of typical reaction wheels it could mean that the system would have one system less. The excluded system would have to be compensated for in extra carried delta-v and a configuration of thrusters that can control the attitude around all three axis of the spacecraft. The paper presents a preview of how an all electrical propulsion attitude and orbit control system could be configured and operated and the impact such a design would have on the spacecraft design. The final discussion is on under what conditions all thruster attitude control design can be chosen for a geosynchronous satellite.