

SPACE PROPULSION SYMPOSIUM (C4)
Electric Propulsion (4)

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THE ELECTRICAL PROPULSION SYSTEM ON THE SMALL GEO PLATFORM

Abstract

Small GEO (SGEO) is a new geostationary platform that is being developed by a consortium led by OHB-System AG. The Swedish Space Corporation is part of the Consortium, with the specific responsibility for providing the Electrical Propulsion system (EP) and the Attitude and Orbit Control system (AOCS). The project is currently in Phase C, and the first mission using the SGEO platform will fly in 2012.

The EP system on SGEO is based on eight fixed thrusters, divided into two branches of four thrusters each. Each branch can support the full mission. The EP system is used for all on-station station-keeping operations including repositioning and angular momentum dumping.

One EP branch will be based on SPT-100 thrusters while the second branch will provide an in-flight demonstration of a new type of thruster denoted the HEMP (High Efficiency Multistage Plasma thruster).

A unique feature with SGEO is the use of a Xenon Cold Gas system, which will share the same Xenon tanks and pressure regulator as the EP thrusters. The Cold Gas system is only used in connection with Safe Mode operations when the EP cannot be operated.

The paper will describe the main features of the SGEO EP system and its development and verification approach. Also included will be performance predictions based on extensive simulations and preliminary results from tests performed so far.