



Space Technology Mission Directorate Game Changing Development Program

Small Spacecraft Electric Propulsion System (SmallerEP) ACO - Gabriel Benavides & Eric Pencil (NASA Glenn)

Project Overview

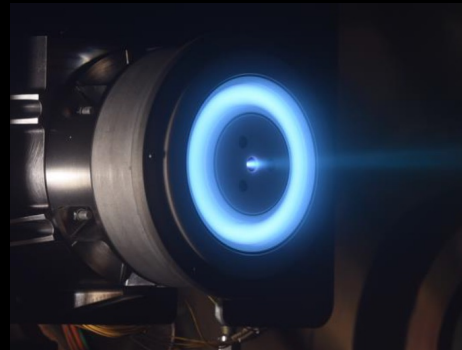
Mature a Northrop Grumman (NG) high propellant throughput sub-kW electric propulsion system to enable low-cost small spacecraft missions with high delta- v requirements. NG developing NGHT-1X Hall propulsion system based on technology licensed from NASA. Ideal primary propulsion for spacecraft size of 180-450 kg.

Project Objectives

- **(Completed)** performance, thermal, shock, vibe, and short duration wear tests of the NGHT-1X thruster,
- **(Completed)** an engineering model integrated system test including the thruster, power processing unit (PPU), and xenon flow controller
- **(In-progress)** component level cyclic life tests (six cathode heaters and 3 sets of electromagnet coils)

Infusion Plans

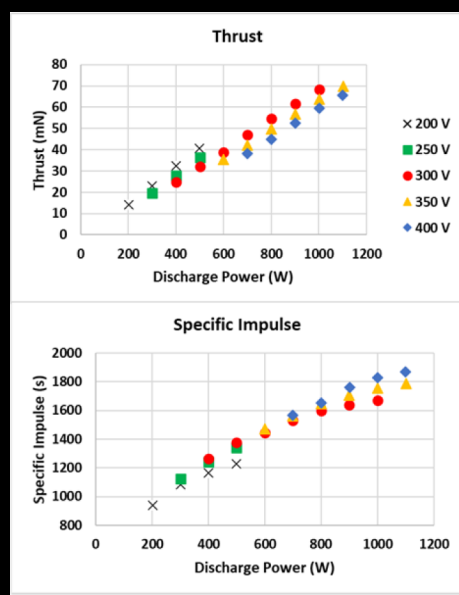
Northrop Grumman implementing NGHT-1X system on their Mission Extension Pod (MEP) missions providing satellite servicing in GEO.



NGHT-1X EM Thruster



NGHT-1X EM PPU



Propulsion system performance is in-line with expectations.