

IAF SPACE PROPULSION SYMPOSIUM (C4)
New Missions Enabled by New Propulsion Technology and Systems (9)Author: Ms. Zafera Amtul Khader
India, cristy_niks@yahoo.co.inCOMBINING ELECTRIC SAIL PROPULSION AND MAGNETIC PROPULSION TO REDUCE THE
TIME INVOLVED IN DEEP SPACE EXPLORATION**Abstract**

Research in deep space is ongoing and rapidly developing. A vital part of the deep space exploration is the creation of systems with a small chance of disabling failures, plus an ability to work around failures when they do occur. Propulsion plays an important role in designing a mission and space craft. solar sails, a method of spacecraft propulsion using radiation pressure exerted by sunlight on large mirrors. This sail allows to perform such missions at a limited cost and with limited technological studies. The future of deep space exploration holds the promise of solving the many mysteries that lie beyond our solar system. But despite renewed interest in again visiting the moon and a fevered pitch to reach Mars, deeper adventures into the galaxy will depend on the realization of light-speed travel. The chances of going that fast, as any scientist will attest, are currently as cold and dark as space. But we can reduce the time of these deep space exploration by combine propulsion system that includes electric and magnetic propulsion to work together simultaneously. Combining the sails compensates for each technology's shortcomings: a magnetic sail is more effective at higher velocities than the electric sail, whereas an electric sail demonstrates superior performance at low speeds. Apart from the acceleration propulsion system a crucial component which is often overlooked is the deceleration system of an interstellar mission. Most promising technology for deceleration is the magnetic sail which uses the deflection of interstellar matter via a magnetic field to decelerate the spacecraft. The recent studies have shown that the combination of both electrical and magnetic sail has reduce the time take for deep space travel by 5