

IAF SPACE POWER SYMPOSIUM (C3)
Wireless Power Transmission Technologies and Application (2)

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AN INNOVATIVE CONCEPT OF MIRROR SATELLITE TO USE SOLAR ENERGY EFFICIENTLY

Abstract

Currently all in orbit satellites are powered by solar energy. The main issue with solar power is its non-availability to the satellite during earth shadow regions. During shadow regions, satellites depend up on batteries for power source, which adds to mass and occupies large volume. The cost associated with battery system and launching heavier satellites is also substantial. Also, in case of failure of satellite's

attitude system to orient solar panel towards sun, it will not be able to receive maximum solar power. This paper aims to demonstrate an innovative concept of mirrored satellite, through which other in orbit satellites can receive solar power artificially.

The proposed mirror satellite is built in such a way that it can reflect and converge the sun rays directly on to the solar panel of other in orbit satellites, so that they can receive solar power artificially. The mirrored satellite consists of large mirror with required cooling system. The mirror can be protected from space debris using space debris sensors and thrusters. A mechanism to control the orientation of mirror to direct the solar rays on to other satellites solar panel is also conceptualised. And all other system parameters, design specifications and technology requirement will be presented with the supporting calculations and data.