

IAF SPACE POWER SYMPOSIUM (C3)
Space Power System for Ambitious Missions (4)

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SPACE BASED ELECTRICITY GENERATION USING SPACE RESOURCES FOR FUTURE SPACE
COLONIES AND MISSIONS**Abstract**

The human race has constantly held an overpowering desire to venture out into the unknown for the benefit of man, science, and civilization. Earth has been home to humankind since its birth but now humanity has managed to tame Earth and the next step is to traverse into the reaches of the solar system. Although Earth will or will not always be the home to humanity but there are other possible homes for us in this galaxy through colonization. Colonizing space is the next step for humanity that will cause significant advancement benefitting civilization as a whole. Colonization in space will require a wide variety of equipment—equipment to directly provide services to humans; and production equipment used to produce food, propellant, water, breathable oxygen and Energy in order to support human colonization efforts. The first thing that is necessary for space colonization to occur is plentiful resources that are capable of being exploited at low costs similar to past colonization efforts on Earth. One of these plentiful resources in space is the Asteroid belt between Jupiter and Mars. Asteroids are of three types- C-Type, S-Type and M-Type; containing large quantities of carbonaceous objects, siliceous objects and metallic objects, respectively. With the objective for individuals to colonize on different planets or even colonize in space itself, this paper will give an adequately solid and self-sustained approach to produce electricity in space using the continuous orbiting of the asteroid belt between Jupiter and Mars and proper arrangement of magnets. This will involve the phenomena of electromagnetism. Concentrating on the Energy Production part of Space colonization of humankind later on, this paper will propose a technique to create power consistently in space for future colonization. Also, this paper will throw light on the future aspects of space based electricity in future space missions and the utilization of this strategy in asteroid related missions.