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LUNAR BASED SOLAR ENERGY PRODUCTION AND TRANSFER THROUGH LASER MEDIUM

Abstract

As part of the vision of Global Moon village, LunarVis's aim is to have a sustainable industrial level entity which is involved in solar energy production, control, storage and transfer for the moon village and other space based application. Our idea is to perform In-Situ resource utilization (ISRU) of lunar regolith for manufacturing of solar farms for producing clean energy. We want to have self-sustainable solar farms on lunar surface to fulfill the needs of Moon village and other space entities in future. The concept involves controlling, storing and finally transferring this energy via laser terminals to different locations in the moon village. Our laser terminals will be able to provide energy to deep space missions and to geostationary satellites at high accuracy whenever needed. Laser energy will be highly controlled and will have precise transfer through vacuum with less losses and will be received by solar panels working at high efficiency at the laser operational wavelength. Our goal and current work involves with earth based applications to solve the technological challenges in laser transmission and reception to prove that the laser energy transmission is viable source of energy transfer in space.