Transparency in Space: A new approach for efficient Space Based Solar Power Satellite

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Abstract

Space-based solar power (SBSP) satellites aim to transfer solar energy from space to Earth using microwaves, contributing to sustainable and green energy solutions. For efficient power transfer, the microwave beam must be directed toward Earth with minimal divergence in free space. Achieving this requires optically transparent antennas and lenses that can be integrated with solar panels, minimizing their impact on solar energy conversion while enhancing power beaming efficiency. The material for the design of lenses and antenna will be discussed. This work explores key developments in this area, along with the challenges and potential future directions

Keywords: Space based solar power, optical transparency, efficiency imporvement

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