

NASA SBIR/STTR Technologies



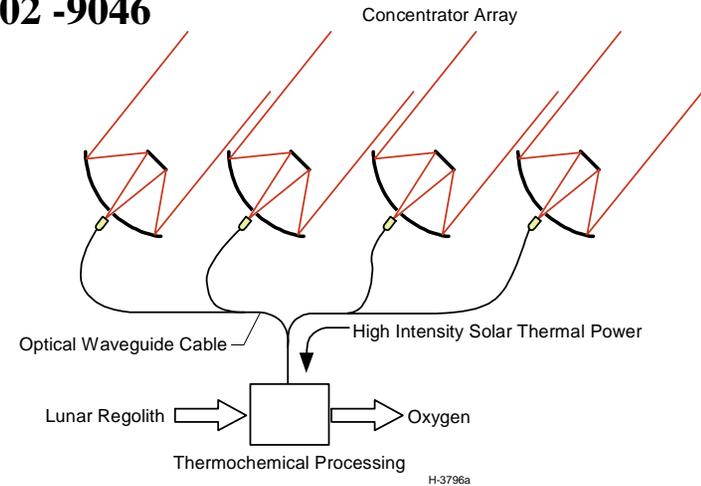
Multi-use Solar Thermal System for Oxygen Production from Lunar Regolith

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Identification and Significance of Innovation

- Solar radiation is collected by the concentrator array.
- Optical waveguide line direct the solar energy to the central receiver for thermochemical process for oxygen production from lunar regolith.
- High intensity solar radiation is available for thermochemical processes for oxygen production.
- Power scale-up can be implemented by increasing number of concentrator units.
- The system can be autonomous, stationary and mobile and can be readily deployed on the lunar surface.



Technical Objectives and Work Plan

- Demonstrate the feasibility and evaluate the effectiveness of the solar thermal system for representative lunar oxygen production processes.
- Develop conceptual designs for the lunar based solar thermal system for selected oxygen production processes.
- Design the engineering prototype of the solar thermal system to be built and tested in Phase II.

NASA and Non-NASA Applications

- Production of oxygen and other useful materials on the lunar surface.
- Electric power generation conversion using dynamic electric power generator, such as Stirling converter.
- Solar powered propulsion for communication satellites.
- Transportable solar heat source for industrial process heat, detoxification of contaminated soil, electric power generation using compact heat engine.

Firm Contacts

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NON-PROPRIETARY DATA