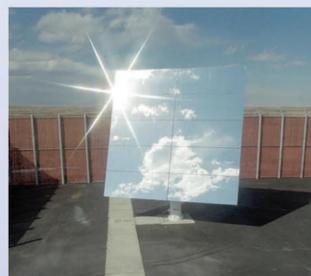
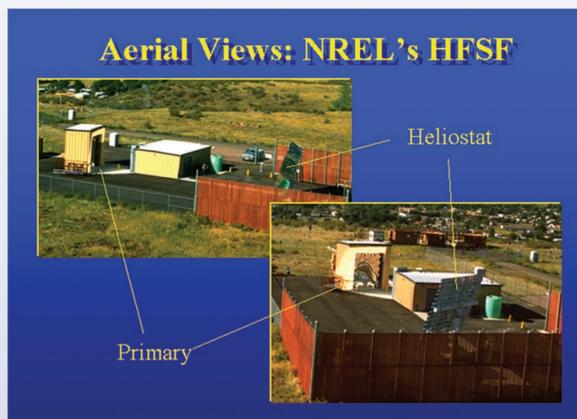


NREL's Concentrated Solar Mesa-top Facilities

South Table Mountain Golden, CO

High-Flux Solar Furnace



Heliostat



Steel and firebrick melting demonstration

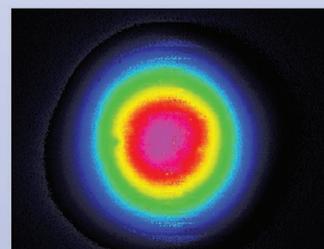
High-Flux Solar Furnace Specifications

- Designated National User Facility in 1993
- 32 m² flat Heliostat
- 12.5 m² Primary Concentrator (25 facets)
- f/D (focal length to diameter) = 1.85
- Nominal total power 9.5 kW
- Peak flux with Primary 240 W/cm²
- Secondary Concentrators for higher flux or more uniform flux
- Attenuator to modulate flux or temperature

Primary Concentrator

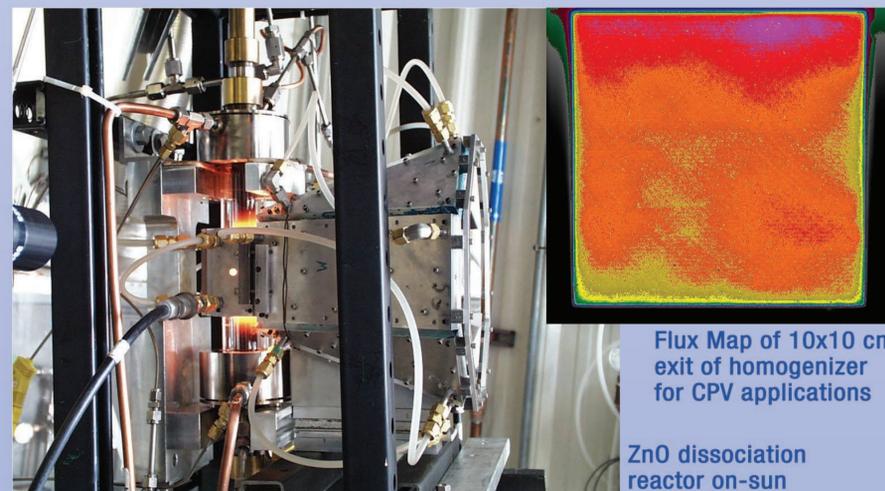


Flux Map of focused beam over 10 cm diameter



Applications

- High Temperature (2000K) Chemistry
- High Temperature Materials Properties
- Rapid Thermal Processing
- Chemical Vapor Deposition
- Adv. Materials Synthesis (C60, SiC)
- Concentrated PV testing
- High heating rates (> 1000°C/sec)
- Thermal Effects Testing



Flux Map of 10x10 cm exit of homogenizer for CPV applications

ZnO dissociation reactor on-sun

High Payload Tracker



Tracker with Solargenix trough aboard



APS tracker

Highlights

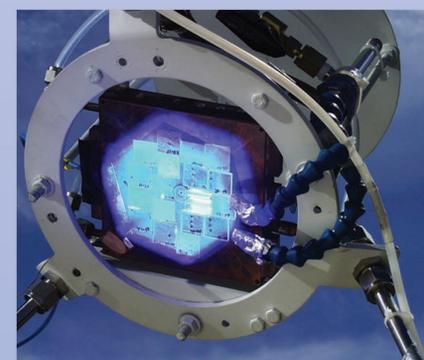
- APS 2-axis tracker
- 9000 pound payload capacity
- 1 milliradian tracking accuracy
- Applicable to thermal or PV systems

Concentrated UV Testing

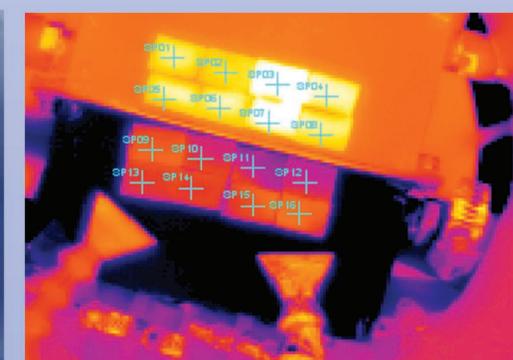
Highlights

- 100x concentration
- > 90% reflectivity 285-400 nm
- < 5% reflectivity > 600 nm
- Accelerated weathering tests
- High-Low temperature chamber
- New larger dish to be installed this summer with enhanced controls

Special coating reflects only UV light



Polycarbonate samples on sun



IR image showing hot and cold regions



UV dish with IR camera and UV radiometers