Low-Cost, Lightweight Solar Concentrator

**MOTIVATION**
Solar concentrators currently cost $150–$250/m², which represents as much as half of the total installed cost for a concentrating solar power (CSP) plant. To reduce concentrator costs enough to achieve the SunShot Initiative’s target installed solar field cost of $75/m², the entire system—from the reflector surface and the mirror support structure to installation and maintenance—must be optimized.

**PROJECT DESCRIPTION**
NASA’s Jet Propulsion Laboratory (JPL) and L’Garde are working together to develop a solar collector structure using lightweight materials that cost less and are easier to install. This design places an emphasis on mass-manufacturability. Specific objectives include designing and developing:

- A durable thin-film mirror using an inexpensive film with high reflectivity
- A rigid-foam mirror support structure achieving weight reductions of more than 50% and cost reductions of 40%
- A mirror module containing several facets and/or gores to facilitate transportation, installation, maintenance, and repair
- Low-cost drive components and an associated control system.

**IMPACT**
The ease of manufacturability, installation, and replacement make JPL’s proposed technology a compelling one to develop. In addition, the solar thermal collector structure could be easily modified for multiple types of CSP applications.

For more information, visit the project page at: www.solar.energy.gov/sunshot/csp_sunshotnd_jpl.html.