Flexible Curved Reflector Elements

Title: Flexible Curved Reflector

Invention: University of Arizona researchers have developed novel methods, devices and systems to provide coatings and thin film layers on arbitrarily sized and arbitrarily shaped curved optical surfaces by, in part, using a deposition technique to provide a coating on a flexible substrate (e.g. glass) that can be subsequently shaped to conform to a particular curved surface. This is an effective, versatile, and low cost solution for providing optical coatings for curved surfaces of arbitrarily large size.

Background: Regardless of the particular method that is used to form thin film layers, it is generally difficult and expensive to provide complex multilayer coatings onto arbitrary curved surfaces, especially large curved substrates such as those used in solar power systems. In such scenarios, the dimensions of the coating are often limited to the size of the equipment that is used for depositing the thin film layers. In essence, it becomes more difficult and expensive, and in case of very large optics, impossible, to meet the size and optical characteristics requirements of such coatings using conventional methods and equipment.

Advantages:

* inexpensive
* accommodates arbitrarily large surfaces
* accommodates arbitrarily shaped surfaces

Applications:

* solar power systems (e.g., concentrated photovoltaic systems)
* telescopes
* laser systems
Status: Provisional patent application has been filed; system has been demonstrated

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