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OFFICE OF IP DEVELOPMENT & COMMERCIALIZATION

Technology Opportunity




Inflatable Solar Energy Collector (the "Solar Sausage")

Traditional systems of solar concentration involve heavy parabolic mirrors that focus sunlight on fragile vacuum-sealed tubes. The mirrors and vacuum sealed tubes are very expensive and require constant maintenance and detailed cleanings in order to remain productive. Recognizing the need for a 21st century approach to solar collection, a research team at Florida State University has developed a collection system based on the same principles as its past counterparts, yet is 1/20th of the cost to fabricate and is 1/50th the weight. This technology can produce temperatures of over 400ºC after a few moments of exposure to sunlight. The results have drawn attention from Department of Energy as well as major utility companies who are in the business of harnessing energy.

Applications

This device heats liquids to high temperatures via focused solar energy. This can be utilized for water heating, electrical generation, biological cultivation, refrigeration, and any other application that requires heat generation.

Advantages

- Lower production and maintenance costs than existing solar collection devices
- Eliminates the need for expensive vacuum-sealed energy receiver tubes
- Precise focus is maintained by an automatic pressure monitoring system
- Easily transported because of the compact inflatable design
- The inflatable structure can be held together with Zip-loc® technology for ease of assembly and allows the panels to be quickly replaced when needed
- Collectors can be configured for small to full scale power needs
- The one-axis rotation system requires few moving parts in order to track the sun

Technology

The Inflatable Solar Energy Collector is a transparent cylindrically shaped pressurized polyester membrane that supports a light reflective film lengthwise inside. This creates two opposing chambers that can be differentially pressurized to change the shape of the reflective film. This differential pressure is adjusted to optimize the shape of the reflective film to maximize the amount of light focused on the energy receiver, which is typically filled with flowing water or oil. A photograph of the Inflatable Energy Collector can be seen at the top of the next page.

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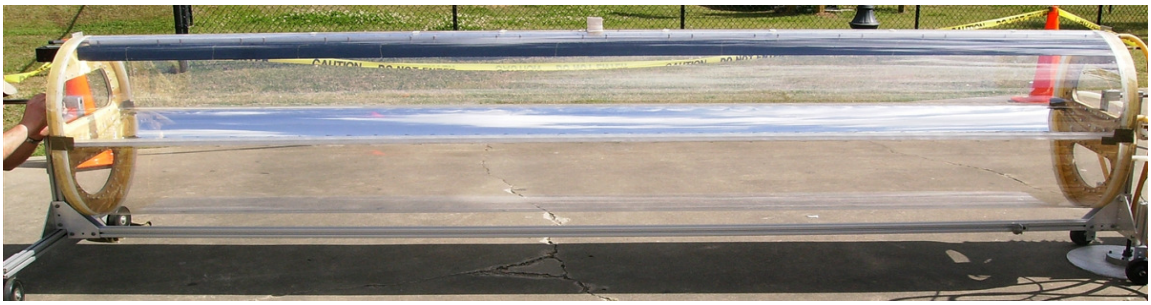

The Inventors

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