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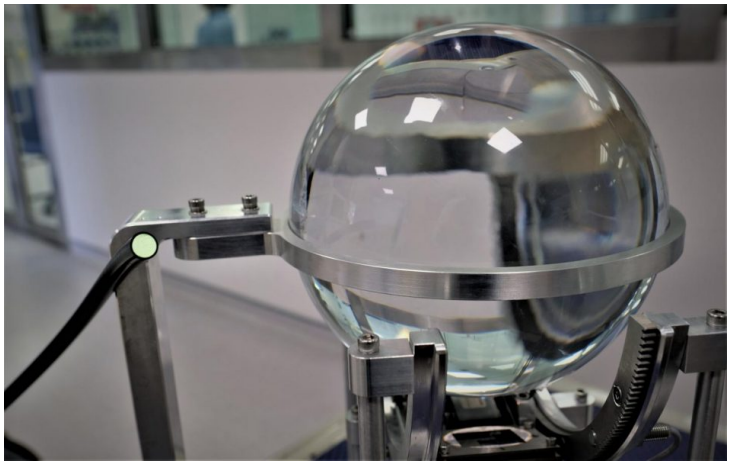
Solar concentrators provide fast and reliable solar light



With a population of 5.6 million people, the small island nation of Singapore has roughly the same density as New York City. In a country where space is of the essence, researchers from Nanyang Technological University have developed a compact solar concentrator to illuminate the island's underground facilities with renewable energy.

Solar concentrators are like solar panels, but with a slightly different design. They resemble glass orbs and work by taking in the sun's rays and concentrating them into a single beam of light. This light is then shone onto a receiver which transports it to an energy facility for conversion into electricity. The large mirrors inside the concentrator, which serve to direct and magnify light, move around throughout the day to optimize sunlight capture. The reason these devices aren't as ubiquitous as solar panels are that they take up lots of space and are difficult to maintain.

In contrast, the researchers' new adjusted prototype is much smaller than traditional concentrators and made from off-the-shelf materials. It doesn't convert sunlight to energy, but rather, sends the concentrated beam of light into one end of a fiber-optic cable and out the other. This powers an LED bulb which turns on automatically during darkness. The round shape also means that the device can capture sunlight from all angles for optimal intake.

The researchers believe that this technology could be easily integrated into existing infrastructure like on lampposts and above underground garages to provide renewable energy and light that doesn't have to be converted to electricity for use.

Image source: AAAS