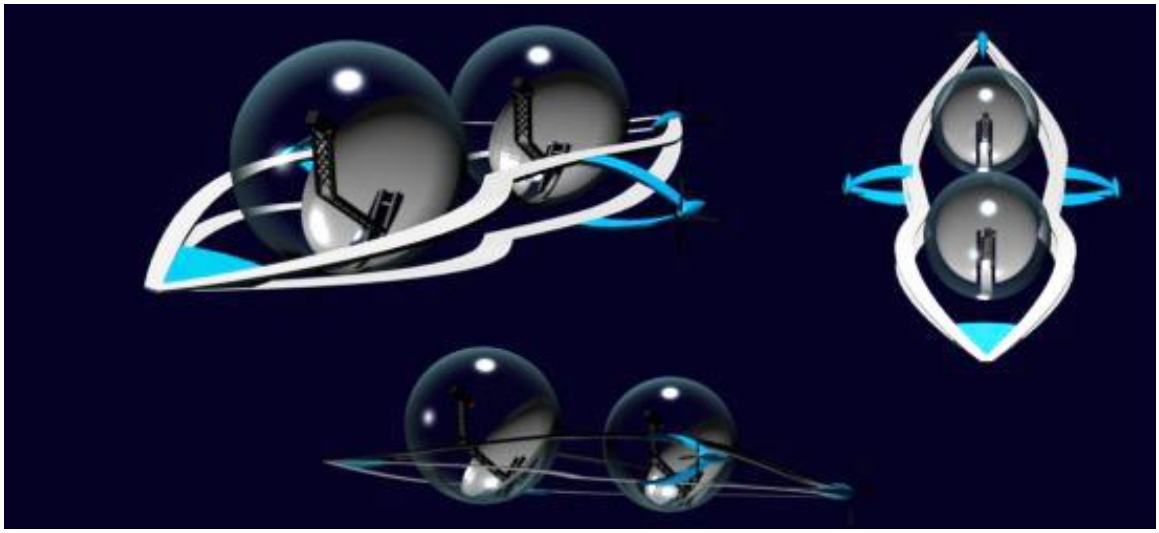
Sterling solar-electric thermal airship concept

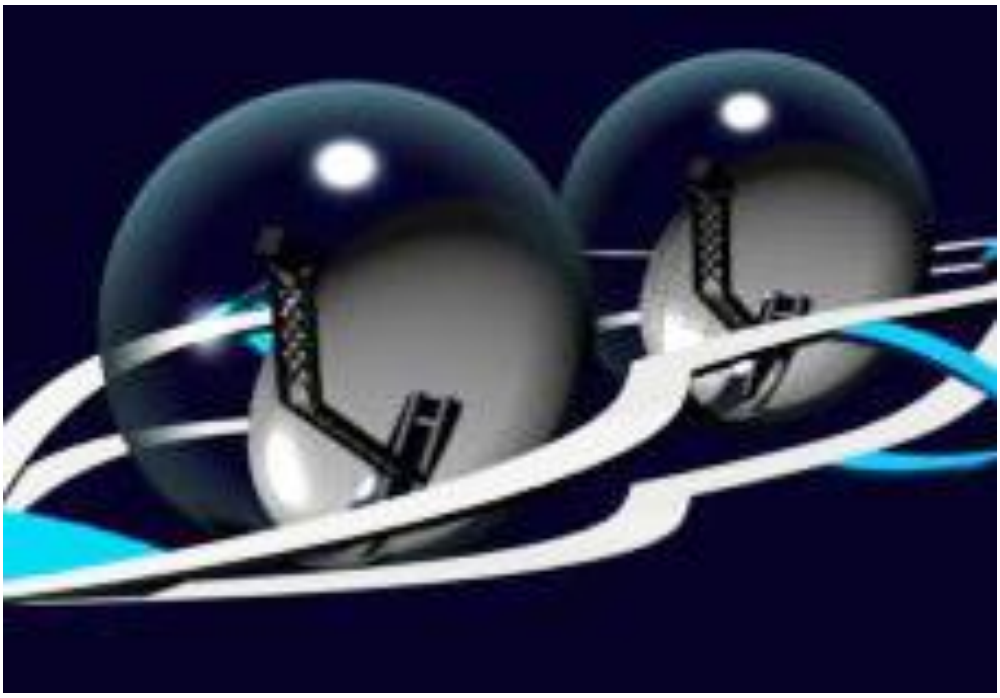
Peter Lobner, updated 18 March 2022

Laurens Rademakers, from Leuven, Belgium, developed this very striking solar-electric airship design concept in 2011 for use on high-latitude, long-duration missions for various communications and surveillance applications.



General arrangement of the Sterling solar-electric thermal airship. Source: Ecofriend

Lift us produced by hot air inside two spherical, partially transparent balloons. A concave solar reflector near the back surface of each balloon concentrates the sunlight on a focal point where air is heated to produce aerostatic lift and a heat-powered Stirling engine generates electricity for propulsion and airship systems. A 2-axis sun tracking system keeps the two solar reflectors constantly facing the sun. Any extra energy from the Sterling engines is stored in batteries to enable the airship to operate through the night.



The solar reflector focal points are visible as two bright spots in this graphic. Source: Ecofriend

4. For additional information

- "Eco Airship: Stunning solar-electric airship for the future skies," EcoFriend: https://ecofriend.com/eco-airship-stunning-solar-electric-airship-for-the-future-skies.html

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