

## **Towards a sustainable aerogel airship: a primer**

### **ABSTRACT**

Airships are the first craft that realized mankind's dream of controlled, powered flight but have been a forsaken method of air transportation since the invention of heavy-than-air aircraft. However, environmental concerns have urged humanity to think once again over the possibility of deploying these lighter-than-air ships. This paper describes an on-going project whereby a nature-inspired airship, namely Huvr Trek is being designed to address current airborne technological, economical and ecological gaps. It uses the world's best thermal insulator and second lightest material, silica aerogel for inhibiting heat transfer within the balloon for efficient lift as well as in a prototype liquid-fuelled ramjet for propulsion. The airship uses carbon aerogels also as super capacitors for energy storage. Proposed applications of the aerogel airship are and implementations into advertising and tourism, surveillance, environmental monitoring, planetary exploration, cargo transportation, stratospheric observation, medical equipment carrier and telecommunication relay.

**Keyword:** Aerogels; Airship; Energy; Insulation; Zero emission