介紹

太陽帆[w]，

透過巨大的薄膜鏡片來反射太陽或其他來源的光，[r]

照射在鏡面上的光經由光子的反射產生輻射壓提供推力 [lr]

如此一來，只要太陽繼續照耀著，太陽帆就能繼續運作。[w]

Solar sail, [w]

Reflect the light from the sun or other sources by a huge film lenses, [r]

And the light irradiating on the mirror surface passes through the reflection of photons to generate radiation pressure and to provide thrust. [lr]

In this way, as long as the sun continues to shine, the solar sail can continue to operate. [w]

太陽系內，最適合太陽帆進行的任務是在太陽附近的迴旋(例如在近距離內觀察太陽的極區)[lr]

那裡有充裕的光子，帆的效率最高。[lr]

因此現階段多數風帆必須將高溫的環境列入必須考量因素中[w]

In the solar system, the most suitable task for solar sails is to whirl around the sun (such as observing the polar regions of the sun at close range). [lr]

There are plenty of photons there, and the sail has the highest efficiency. [lr]

Therefore, at this stage, most sails must include the high temperature environment in the factors that must be considered [w]

在操控上，[r]

調整反射風帆與太陽間的角度可以讓太空船受到的推力方向相對應的產生改變在操控上，[r]

因此太陽帆推進器在前進、操縱或控制飛行姿態時，是無須耗費燃料的 [w]英文翻譯。

In the control, adjusting the angle between the reflected sail and the sun allows the spacecraft to be subjected to a change in thrust direction corresponding to the resulting change in maneuvering. Therefore, solar sail thrusters do not need to consume fuel when advancing, manipulating, or controlling flight postures.

在限制上，[r]

太陽帆在達到足夠的速度前，必須先通過數月的累積[lr]

且體積上非常龐大，而載荷相比來說卻非常微小。[w]

世界第一個以太陽帆為動力的探測器為日本於2010年發射的[r]

IKAROS (Interplanetary Kite-craft Accelerated by Radiation Of the Sun)[w]

IKAROS的關鍵技術有[r]

「大面積的薄膜式太陽帆」、「嵌入太陽帆的薄膜式太陽電池是否可啟動酬載儀器」、[r]

「量測太陽帆上輻射壓產生的加速度」、「可變反射率的液晶板控制航行姿勢」[w]英文翻譯。

On the limits, before the solar sails reaches sufficient speed, they must accelerate for several months. Besides, though the volume of the solar sail is very large, however, the load is very small. [w]

The world's first solar sail-powered probe was launched by Japan in 2010. IKAROS (Interplanetary Kite-craft Accelerated by Radiation Of the Sun)

Key technologies of IKAROS are

"Large area of thin-film solar sail",

"does the thin-film solar battery embedded in the solar sail activate the pay-carrying instrument",

"Measuring the acceleration of radiation pressure on solar sails"

"liquid crystal panel control navigation posture with variable reflectivity"