**A cover for the single-person pedal-powered vehicle**

In today’s life, there are lots of conveyances for people to choose when they want to arrive at their destinations: cars, buses, motorcycle.etc. Recently, more and more people begin to take single-person pedal-powered vehicle (SPPPV) in place of walking.1 This is because tsingle-person pedal-powered vehicles are environmentally friendly and helpful to user’s health.2 However, SPPPV have two main drawbacks due to its lack of shell: safety and comfort, which have bothered SPPPV users for many years. For example, when it begins to rain, SPPPV users have to tolerate the rain dropping on their bodies while the car users just need to open the wiper blades.

Researchers have investigated and proposed several solutions to the problem in recent years. The David-Steven group put forward that a cover for the SPPPV could improve the safety and comfort problems.3 They attached a steel square cover to the main-part of SPPPV so that the users can be protected. Unfortunately, although the safety and comfort problems are alleviated, David-Steven’s design is not ideal because of the following reasons. First, in spite of the stability of steel cover, steel is so heavy that more force is need to be used when people push the pedal. Second, square shape means SPPPV will face more air resistance compared to no-cover,4 which limits the speed of SPPPV. Therefore, a light and strong material as well as a low-air resistance shape design are focus of present studies.

Luckily, our research group has found an ideal cheap material SLSO, super-light-strong-object, and proposed a fantasy streamline shape BWC. The SLSO is an alloy of iron, zircon and copper. It’s as steady as steel while its mass is only 20% of steel. Further more, it’s cheap to synthesize the SLSO so that it can be widely used. BWC derives from the body shape of whale; At the speed of 50km/h, the SPPPV with BWC shape cover faces only 10% air resistance of square shape.

**Bibliography**

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