**Introduction**

Bikes are commonly spotted in the world, being regarded not only as a way to exercise, but also a environmental-friendly way to commute. Therefore, more and more people begin to ride bicycles. However, bicycles are inconvenient to ride during bad weather, such as rain or snow.

A cover could protect the cyclist from exposure to bad weather. It seems easy that we could simply add a umbrella to the bicycle or wrap the bike with iron and glass. Initial research into iron-wrapped bicycles were conducted by Alice[1] a few years ago. However, Bob’s study[2] pointed out that creating an external iron body for the bicycle is unsafe, because the balance is much harder to keep so that the possibility of falling down increases dramatically. Carol carried out a project pointing out the fact that an umbrella cannot effectively shield the rider from the rain[3].

More promising results have been found for bicycle shells made from other materials. Dave’s group used a synthesized material to create a new type of bicycle shell[4]. Eve[5] showed that bicycles with this new type of shell are much easier to balance. However, a remaining challenge for synthetic bicycle shells has been their strong wind resistance.s

In this paper, we apply a new technique to create a synthetic bicycle cover with an aerodynamic shape, which can significantly decrease the wind resistance. In addition, we use a new polymer material tested by Francis[6] to build the cover, which is extremely light and hard. In our experiments, the results is promising, indicating that our bike with the shell is both protective and costumer-friendly.