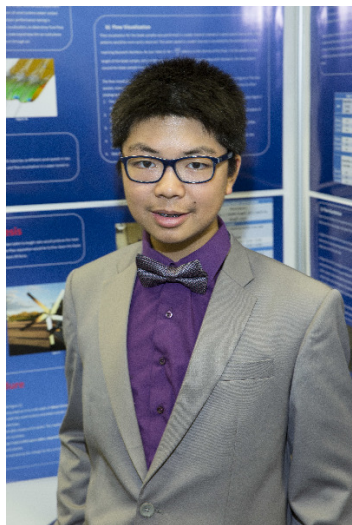


## CWSF 2014 - Windsor, Ontario



### Kelvin Leung

#### Investigation of Wind Turbine Blades with Tubercles

**Challenge:** Energy

**Category:** Senior

**Region:** Renfrew County

**City:** Pembroke, ON

**School:** Fellowes High School

**Abstract:** Wind turbine blades with tubercles were inspired by humpback whale flippers. Outdoor testing of blade lengths 30 to 50cm indicated that power outputs of blades with tubercles increased over 15% from those without tubercles. Flow visualization was also performed in a water channel to determine how tubercles would improve the efficiency of the blades. Vortices behind tubercles were shown to decrease flow separation, increasing lift.

#### Biography

My name is Kelvin Leung, I am 15 years old, and I am currently in Grade 11 at Fellowes High School in Pembroke, Ontario. My favourite subjects in school are math, physics, and chemistry, but I enjoy most other subjects. My hobbies include playing the piano, violin, and badminton. I have been learning the piano since the age of 4 and the violin since the age of 5. I joined the Pembroke Symphony Orchestra in 2009 and Ottawa Youth Orchestra in 2013 playing the violin. I also accompany church services every Sunday on piano and organ. Recently, I have been elected as President of Key Club, an international community service organization, at my school for next year. I am also involved in other school activities, such as Reach for the Top (trivia team), the tutoring club, and the varsity badminton team. In the future, I would like to study aerospace engineering in university and pursue a career in this, or a similar field. I am looking forward to attending CWSF in Windsor this year.