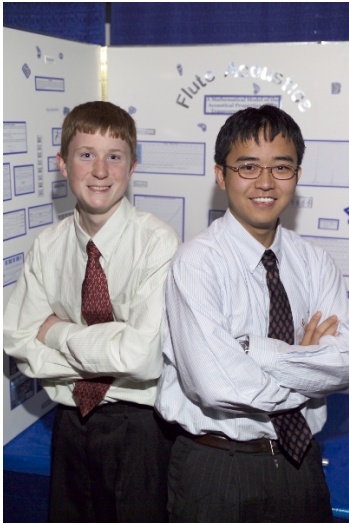


## CWSF 2006 - Saguenay, Québec



### **Matt Laporte, Bo Lu**

#### **A Mathematical Model of the Acoustical Properties of the Transverse Concert Flute**

**Division:** Health Sciences

**Category:** Senior

**Region:** Algoma Rotary

**City:** Sault Ste. Marie, ON

**School:** Korah Collegiate & Vocational School

**Abstract:** This project produced a model that is used to accurately estimate keyhole locations on a flute's body. Finding notes and their tube lengths, end corrections were applied to these lengths in order to accurately predict wavelength and find a correlation between frequency and tube length. This method had a small keyhole placement error of  $\pm 0.053\text{m}$ , and could be changed to suit other open tube instruments.