Naomi Victoria Fredeen

Fourier Analysis on Violin Tone

Division: International / None
Category: Senior
Region: Central Okanagan
City: Summerland, BC
School: Summerland Secondary

Abstract: I did Fourier analysis on several different violins to see if the harmonic patterns betweens violins were unique to each one. None of the differences were statistically significant. However, using a weight and pulley system to almost entirely eliminate human error, I managed to reduce the standard deviation on one of the violins to a minimum.

Biography

Living in Toronto for 11 years, I was involved in dance, music and school. When we moved out to Summerland, BC in the summer of 2002, I got involved in everything at school, including science fair, which I hadn't heard of before moving here. My science fair projects, starting with the first, have been steadily progressing up the science fair levels, with a silver at the regionals in Gr. 8, to a gold at the same place this year (Gr. 11). This year, having played the violin for about 5 years helped with my project. Testing violins for different sound wave patterns helped me to consolidate my different goals for the future. I hope to get into mechanical engineering at UBCO when I graduate, then do both engineering and music at UBC in Vancouver the year after. I also hope to do some major traveling, especially in Europe and Asia. Dancing, playing violin, flute, trumpet, piano, and guitar, and doing science fair is keeping my life busy. I look forward to science fair every year, and hope go to the nationals next year for the last time before I graduate.

Awards	Value
The University of Western Ontario Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: University of Western Ontario	$1 000
University of Ottawa Entrance Scholarship Senior Bronze Medallist - $1000 Entrance Scholarship Sponsor: University of Ottawa	$1 000
Bronze Medal - Physical & Mathematical Sciences - Senior Sponsor: Encana Corporation	$300
Total	$2 300

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