

# CWSF 2012 - Charlottetown, Prince Edward Island



## Usman Kamran

### The Acousto-Thermal Effect

**Challenge:** Innovation

**Category:** Senior

**Region:** Wood Buffalo

**City:** Fort McMurray, AB

**School:** Westwood Community High School

**Abstract:** Detailed experiments with acoustic absorbers have inspired suggestive proof of deadened acoustic heating. Not only is this phenomenon detectable but it can be harvested and utilized via the thermoelectric effect. Noting sound's ubiquitous renewable energy potential, this project introduces a novel method of exploiting one of the world's most underutilized resources.

#### Biography

Hi! I'm an AP student in grade 12 from Westwood Community High School (Fort McMurray, AB). Being interested in photovoltaic cells and their renewable energy potential, I was elected to lead the school's Student Body of Science in producing and implementing the district's first ever student-made panels into the school's circuitry. As the President of the school's Robotics Club, I learn Arduino-based programming in my spare time. This project was inspired by a desire to find a creative means to transform acoustic pressure waves into usable form. If further developed, this new technique could mark a paradigm shift in extracting acoustic-based energy. Aside from science, I also enjoy reading, volunteering, and playing basketball.

#### Awards

#### Value

Canadian Acoustical Association Award - Senior Sponsor: Canadian Acoustical Association	\$1 000
The Manning Innovation Achievement Award Sponsor: Ernest C. Manning Awards Foundation	\$500
Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	\$700
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$2 500
UBC Science (Vancouver) Entrance Award Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$2 000
University of Ottawa Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: University of Ottawa	\$2 000
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
<b>Total</b>	<b>\$10 700</b>