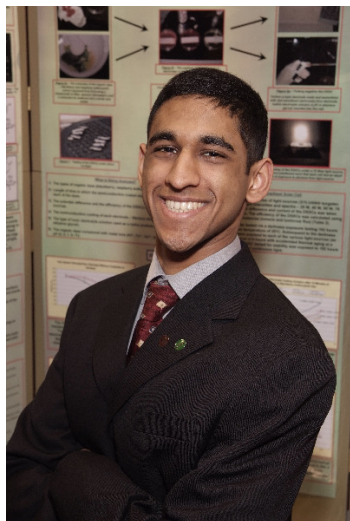


# CWSF 2008 - Ottawa, Ontario



## David Castelino

### Photonic Boom

**Division:** Health Sciences / Environmental Innovation

**Category:** Senior

**Region:** Peel

**City:** Mississauga, ON

**School:** St. Aloysius Gonzaga

**Abstract:** This project focuses on maximizing the efficiency and stability of a dye-sensitized solar cell that utilises naturally occurring organic dye extracts to produce electrical energy. Techniques and materials found to optimize efficiency of the dye-sensitized solar cell were used to successfully design an efficient and cost-effective solar roofing tile material that can be used in third-world countries. Average efficiencies of 14% were achieved.

### Biography

As a grade twelve student at St. Aloysius Gonzaga S.S. in Mississauga, Ontario, David Castelino is a passionate scientist, fascinated with research in medicine and engineering. He has represented Ontario as a finalist at three Canada-Wide Science Fairs. In 2006, David represented Canada at the Australian National Youth Science Forum. In Australia, David had the opportunity to work alongside top scientists and participate in 'hands-on' science events and discussion groups on global issues. In 2007, David was selected to be on Team Canada and was given the opportunity to compete at the Intel International Science and Engineering Fair in Albuquerque. In New Mexico, he won a third place grand award in Energy and Transportation, as well as a Patent and Trademark Office Society patent citation for his solar cell innovation. Along with being a provincial-level swimmer, avid guitarist, saxophone player, and the Environmental Innovation expert for YSF's SMARTS Network, David enjoys writing for his high school newspaper and participates in his city's youth council. He has attained the bronze and silver levels in the Duke of Edinburgh Program, and he coaches swimming at his local community centre. In future, David intends to pursue a career in engineering and medicine.

### Awards

### Value

The Manning Innovation Achievement Award Sponsor: Ernest C. Manning Awards Foundation	\$500
S.M. Blair Family Foundation Award - Senior Sponsor: S.M. Blair Family Foundation	\$1 000
Dalhousie University Faculty of Science Entrance Scholarship Senior Gold Medallist - \$4000 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$4 000
NSERC Undergraduate Student Research Award - Senior Gold Medallist Sponsor: Natural Sciences and Engineering Research Council of Canada (NSERC)	\$5 625
The University of Western Ontario Scholarship Gold Medallist - \$2000 Entrance Scholarship Sponsor: University of Western Ontario	\$2 000
The University of Western Ontario Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Western Ontario	\$1 000
University of Ottawa Entrance Scholarship Senior Gold Medallist - \$20,000 Entrance Scholarship (\$5,000 each year for 4 years) Sponsor: University of Ottawa	\$20 000
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Bronze Medal - Environmental Innovation - Senior Sponsor: EnviroExpo, Presented by VIA Rail Canada	\$300
Gold Medal - Engineering - Senior Sponsor: Youth Science Foundation Canada	\$1 500
<b>Total</b>	<b>\$36 925</b>