



CWSF 2012 - Charlottetown, Prince Edward Island



Biography

I am a Grade 11 student at St. George's School in Vancouver, BC. Having emigrated from Argentina 6 years ago, I discovered the wonders of science fair relatively late, in my Grade 10 year. The exhilarating leap from science textbooks to solving real-life science problems is but one of the many reasons I chose to continue science fair this year (this is my first year to CWSF). Although I very much enjoy learning for the sake of learning in general, I am rather lopsided on the math and physics side, planning to major in mathematics and another quantitative science in university. To express my artistic ideas, I, a former VYSO member, like to play the violin. On a tangential note, I secretly dream of owning a Stradivarius.

Carlos Daniel Xu

Gravito-Meissner Effect in Neutron Star Systems

Challenge:	Discovery
Category:	Senior
Region:	Greater Vancouver
City:	Vancouver, BC
School:	St George's School
Abstract:	Under the framework of gravitomagnetism, in which we consider the component of gravity that behaves like magnetism, we can investigate the gravity analogy of the Meissner effect, the phenomenon by which a superconductor repels external magnetic fields, in superfluid neutron stars. Upon deriving mathematical models, we find the hypothesized repulsion of gravito-magnetic fields to be false. Instead, the gravitational Meissner effect magnifies external gravito-magnetic fields.

Awards	Value
The Manning Innovation Achievement Award	\$500
Sponsor: Ernest C. Manning Awards Foundation	
The Manning Innovation Achievement Award	\$4 000
and \$4000 Manning Young Canadian Innovation Award	
Sponsor: Ernest C. Manning Awards Foundation	
Challenge Award - Discovery - Senior	\$1 000
Sponsor: Youth Science Canada	
Excellence Award - Senior - Gold Medal	\$1 500
Sponsor: Youth Science Canada	
Dalhousie University Faculty of Science Entrance Scholarship	\$5 000
Senior Gold Medallist - \$5000 Entrance Scholarship	
Sponsor: Dalhousie University, Faculty of Science	
UBC Science (Vancouver) Entrance Award	\$4 000
Senior Gold Medallist - \$4000 Entrance Scholarship	
Sponsor: The University of British Columbia (Vancouver)	
University of Manitoba Entrance Scholarship	\$5 000
Senior Gold Medallist - \$5000 Entrance Scholarship	
Sponsor: University of Manitoba	
University of Ottawa Entrance Scholarship	\$4 000
Senior Gold Medallist - \$4,000 Entrance Scholarship	
Sponsor: University of Ottawa	
Western University Scholarship	\$4 000
Gold Medallist - \$4000 Entrance Scholarship	
Sponsor: Western University	
Total	\$29 000



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