

## CWSF 2018 - Ottawa, Ontario



### Using High Temperature Superconductors in the Search for Life on Enceladus

**Challenge:** Innovation

**Category:** Senior

**Region:**

**City:** ,

**School:**

**Abstract:** Cassini probe data indicate that methanogenic micro-organisms are likely to exist in the underground ocean of Enceladus. Extremely low gravity, tidal quakes, and severe cold represent significant challenges for any robotic or human expedition to the surface. It was demonstrated that these barriers may be mitigated by strategically utilizing the Meissner Effect, Quantum Pinning, and Quantum Gliding properties of the high temperature superconductor  $YBa_2Cu_3O_7$ .

Awards	Value
Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
Carleton University Entrance Award Senior Silver Medallist - \$2,000 Entrance Award Sponsor: Carleton University	\$2 000
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>\$10 500</b>