

2018 PRIZE WINNERS / GAGNANTS DES PRIX 2018

UNIVERSITY PRIZE EXAM RESULTS 2018 – RÉSULTATS DE L'EXAMEN DU PRIX UNIVERSITAIRE 2018

The 2018 examination was coordinated by the Department of Physics at the University of Toronto and was held on March 13, 2018. The examination was written by 86 students from 15 universities/colleges. / Cette année, 74 étudiants de 16 universités ont participé au concours universitaire qui a eu lieu le 7 février 2017 et qui était administré par l'Université de Toronto.

Hanzhen Lin	First prize/premier prix	University of Toronto	
Chan Gwak	Second prize/Deuxième prix	University of British Columbia	
Pedram Amani	Third prize/Troisième prix	University of British Columbia	
4. Hiromitsu Sawaoka	University of Toronto	7. Matthew Ward	University of British Columbia (tie)
5. Andrew Gomes	University of Toronto (tie)	9. Anqi Mu	University of Toronto
5. Hong Zhe Chen	University of British Columbia (tie)	10. Miles Cranmer	McGill University
7. Stefan Divic	University of Toronto (tie)		

CAP HIGH SCHOOL PRIZE EXAM – L'EXAMEN DU SECONDAIRE OU COLLÉGIAL DE L'ACP 2018 NATIONAL WINNERS – GAGNANTS 2018 À L'ÉCHELLE NATIONALE

First prize / Premier prix	Guo Ming Zheng, Richmond High School, Richmond Hill, ON
Second prize / Deuxième prix	Ming Yange Ye, Bayview Secondary, Richmond Hill, ON
Third prize / Troisième prix	Pedram Amani, West Vancouver Secondary, West Vancouver, BC

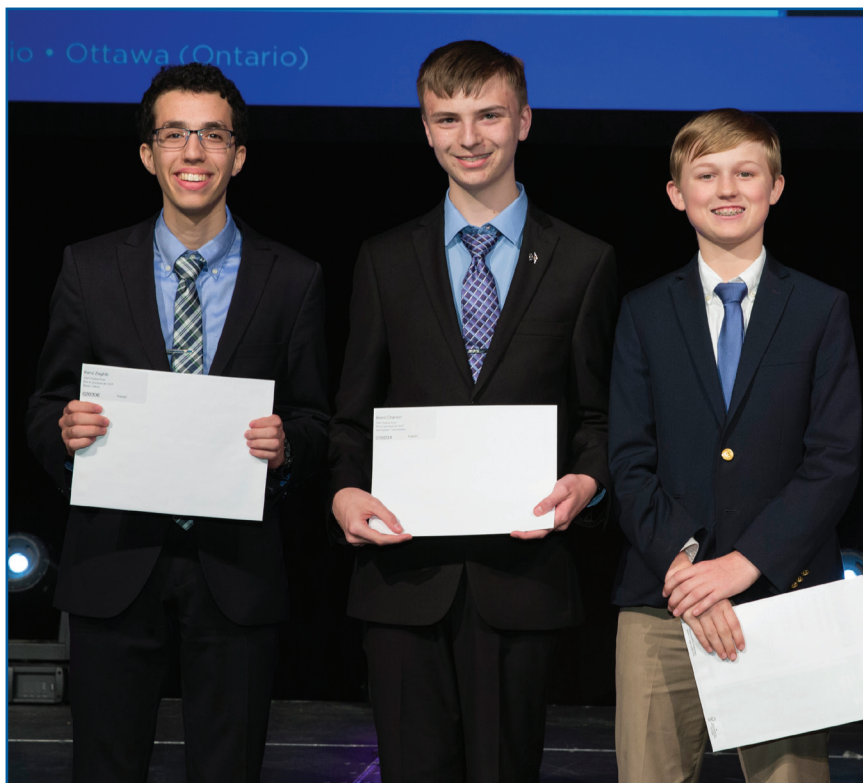
2018 CANADA-WIDE SCIENCE FAIR – 2018 EXPO-SCIENCES PAN CANADIENNE

The 2018 Canada-wide Science Fair was held from May 12-19 in Ottawa, ON. This year the CAP sponsored prizes at each of the “senior”, “intermediate” and “junior”:

Senior CAP Physics Prize – Kenz Zaghieb Longueuil, QC

Project: Nouvelle approche vers la synthèse de nanocatalyseurs pour la production d'H₂

Biography: Kenz Zaghieb, étudiant en sciences de la nature, profils santé et sciences pures, au Collège Jean-de-Brébeuf à Montréal, en est à sa deuxième participation à l'Expo-sciences pancanadienne. Ce passionné des sciences est membre des clubs de mathématiques et de chimie de son école ainsi que du comité éditorial de la revue de sciences Perceptum. Il a eu la chance de suivre des stages en microscopie électronique et en électrochimie dans des universités, stages où il a développé



2018 CWSF prize winners (from left to right): Kenz Zaghieb (senior), Brent Charron (intermediate) and Henry Mullins (junior).

CONGRATULATIONS

un intérêt marqué pour la recherche de catalyseurs de nouvelle génération, efficaces et à base de métaux peu coûteux afin de remplacer le platine et l'iridium. Ces catalyseurs ont le potentiel de permettre l'implantation à plus grande échelle de technologies connexes à l'électrolyse de l'eau, telles les piles à hydrogène. Kenz Zaghbi s'intéresse également à l'emploi de simulations assistées par ordinateur pour prédire les propriétés des matériaux et s'est interrogé sur leur déploiement dans la recherche de catalyseurs. Dans le futur, il aimerait explorer l'application des catalyseurs élaborés dans des piles à hydrogène, une technologie verte prometteuse. Il recommande aux étudiants désireux de se lancer dans une expo-sciences de consulter des experts pour enrichir leur projet et bénéficier de leurs judicieux conseils.

Abstract: Les catalyseurs sont essentiels en vue de l'implantation des technologies d'électrolyse pour la production d'hydrogène, vecteur d'énergie verte. Cependant, la plupart des catalyseurs sont composés d'iridium et de platine, des métaux nobles. Ce projet présente une approche intégrée en matière d'élaboration de nanocatalyseurs efficaces et peu dispendieux en s'appuyant sur des simulations quantiques par DFT. Les prédictions théoriques de structure électronique sont ensuite déployées.

Intermediate CAP Physics Prize – Brent Charron, Maidstone, ON

Project: Conformable LEECs using Elastomeric Emissive Materials

Biography: My name is Brent Charron. I am a fifteen-year-old, Grade 10 student at Vincent Massey Secondary School located in Windsor, Ontario, Canada. I have been participating in regional science fairs for the past seven years. I have been chosen to represent my region at two Canada Wide Science Fairs and was awarded a gold medal at both. My project deals with the fabrication of a novel flexible light emitting device known as a LEEC. After learning about semi-conductors, I was inspired to create this device. I would like to look at additional elastomeric emissive materials to determine if improved conductivity and flexibility can be achieved. In addition to science, I also enjoy playing piano and trumpet and I am a member of the Windsor Symphony Youth Orchestra. I also enjoy swimming, Aikido, and painting. I would encourage anyone who is considering developing a science fair project to find an area which is of interest and start looking at the literature to see what work has already been done and build off of that. In the future, I would like to pursue a career in chemical engineering.

Abstract: My project involves the fabrication of light emitting devices that are flexible, or even stretchable. These devices have many uses including biomedical applications in which they could be integrated into the body to monitor blood glucose levels for people who are diabetic, or for use in electronic environments such as foldable cell phones. Various substrates were experimented with to achieve flexibility while maximizing conductivity.

Junior CAP Physics Prize – Henley Mullins, St. Johns, NL

Project: Rockets are Such a Drag

Biography: My name is Henley Mullins. I am a grade 7 student at St Bonaventure's College in eastern Newfoundland. My interests include tinkering and rockets (following SpaceX). I am also an avid reader, play the string bass and love the outdoors. I want to be a mechanical engineer when I grow up. I believe that SpaceX and other private space companies will lead humanity into the future of space.

Abstract: The project compared the aerodynamic efficiency of three rockets (Falcon Heavy, Space Launch System and New Glenn). A wind tunnel was built that could test 3D-printed model rockets at speeds of up to 30 kilometers per hour. Drag force was measured and the aerodynamic drag coefficient was calculated.

The 2018 Canada-Wide Science Fair will be held in Ottawa, ON.