Congratulations / Félicitations!

2021 Student Prize Winners / Gagnants des prix pour les étudiant(e)s 2021

2021 University Prize Exam Results / Résultats de l'examen du prix universitaire 2021

The 2021 examination was held virtually on March 9 and was coordinated by the University Prize Exam Committee, chaired by Christine Kraus, Laurentian University. The exam was written by 61 students from 14 universities/colleges.

Cette année, 61 étudiants de 14 universités ont participé au concours universitaire. L'examen s'est déroulé virtuellement le 4 février et qui était administré par le commité d'examen du prix universitaire, présidé par Christine Kraus, Université Laurentienne.

First prize/Premier prix	**Samuel Li**	**University of Toronto**
Second prize/Deuxième prix	**Qiu Shi Wang**	**McGill University**
Third prize/Troisième prix	**Pedram Amani**	**University of British Columbia**

4. Tony An, University of Toronto
5. William Francis, Queen's University
6. Qi Lin Xue, University of Toronto
7. Adrien Yeung, Simon Fraser University
8. Jay Epstein, University of Toronto (tie)
9. Ryan Ripsman, University of Toronto (tie)
10. Ryohei Weil, University of British Columbia

The High School/Cégep Prize Exam was not held in 2021 due to Covid-19.

2021 Canada-Wide Science Fair Prizes / Prix de l'Expo-sciences pancanadienne 2021

The 2021 Canada-Wide Science Fair was held virtually from May 17-21. The CAP sponsored prizes at each of the “senior”, “intermediate” and “junior" categories.

Senior CAP Physics Prize – Adam Patton, Kamloops, BC

Project: The Shapes of the Future - Increasing Electrode Efficiency in Electrolysis for Hydrogen Production

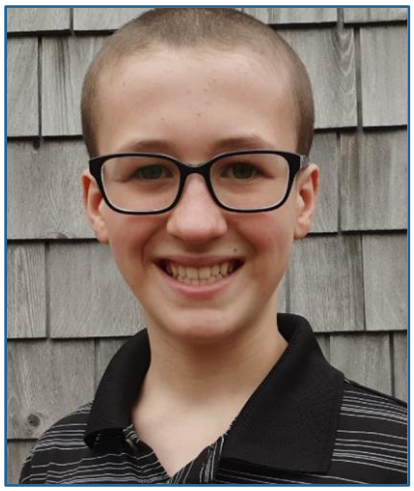
Abstract: Hydrogen is a promising alternative fuel because it can be made using the world’s most common resource, water, through the process of electrolysis. Currently, this process uses expensive platinum electrodes for hydrogen production; for this reason, the cost-effective method of steam reforming is utilized to produce hydrogen which has a carbon footprint. The goal of this project was to increase the efficiency of alternative alloys in the process of electrolysis by altering the surface shapes of different electrodes. It was discovered that developing readily available alloy electrode shape combinations could increase hydrogen production by 22% and reduce deterioration by 61%. From these results, two electrode shapes were created; one design, a dimple hexagonal bar, increased hydrogen production by 26% and decreased deterioration by 63%. This project successfully demonstrates that alternative electrode materials can be used for hydrogen fuel production, allowing clean hydrogen fuel to be economically produced utilizing electrolysis.

Intermediate CAP Physics Prize – Mitchell Clapperton, Bay Area, ON

Project: The Creation & Optimization of a Wake Mitigation Device Using Computational Fluid Dynamics

Abstract: Recreational boat wakes can have significant negative impacts on the natural and built environment, and this project set out to seek a technical solution to that problem. Using 3D computer aided design modelling software and computational fluid dynamics, I created a Wake Simulation Model to simulate a boat moving through water at a variety of fixed speeds in order to quantify the wakes produced. I investigated options and determined that the incorporation of a wake mitigation device positioned on the bow of a boat could achieve significant wake reductions. Tests were conducted to find the optimal mitigation device design, size and location for various modes of boat operation. I was able to demonstrate a reduction of 42% in wake energy through my preferred design.

Junior CAP Physics Prize – Téo L'Italien, Districts francophones du Nouveau-Brunswick – New Brunswick



Project: Le réjuvénateur de marqueurs

Abstract: Je m'appelle Téo et je suis un garçon très curieux. C'est pour ça que je me suis demandé s'il y avait un moyen de donner une deuxième vie aux marqueurs qui ne fonctionnent plus. Et j'ai trouvé ! J'ai inventé une machine dans laquelle on peut mettre des marqueurs qui semblent ne plus fonctionner afin de leur permettre d'être encore utilisables. Cette machine fonctionne en utilisant la force centrifuge et elle fait tourner les marqueurs très rapidement ce qui fait en sorte que l'encre restante dans le marqueur est repoussée vers le bout avec lequel on écrit. Ma machine s'appelle le Réjuvénateur de marqueurs. À mon avis, il est très important de pouvoir réutiliser les marqueurs qui ne fonctionnent plus afin de réduire le gaspillage, protéger l'environnement et économiser de l'argent.