

MAY 2019

DEPT. OF PHYSICAL AND
ENVIRONMENTAL SCIENCE

DPES

DIGEST

CONGRATULATIONS
DPES STUDENTS
FOR COMPLETING
ANOTHER YEAR!!

C O N T E N T S

CONFERENCE

**47TH SOUTHERN ONTARIO
UNDERGRADUATE STUDENT
CHEMISTRY CONFERENCE**

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EPSA

CSU



UNIVERSITY OF
TORONTO
SCARBOROUGH

47th Southern Ontario Undergraduate Student Chemistry Conference

SHADI DALILI AND EFFIE SAUER



On March 30th 2019, the University of Toronto Scarborough (UTSC) hosted the 47th Southern Ontario Undergraduate Student Chemistry Conference (SOUSCC47), co-organized by Professors Shadi Dalili and Effie Sauer. Participants came from as far as Sudbury to the north, Ottawa to the east and Windsor to the south. In total, 197 students, faculty and industrial representatives were in attendance to celebrate the research achievements of our best and brightest undergraduate chemistry students. The conference opened with a plenary lecture delivered by Prof. Myrna Simpson of the Department of Physical and Environmental Sciences at UTSC. There were 110 student presentations over 8 symposia: analytical chemistry, biological & medicinal chemistry, chemistry education, environmental chemistry, green chemistry, inorganic & materials chemistry, organic chemistry, and physical/computational/theoretical chemistry.

In addition to oral presentations, the conference featured a vibrant poster session with 40 poster presentations.

The conference organizers would like to thank our many sponsors, and in particular, the CIC for their support through the Chemical Education Fund, as well as their many subject divisions and local chapters. We thank, as well, the small army of student volunteers, both undergraduate and graduate, who worked tirelessly behind the scenes, as well as the many faculty judges who donated their time and expertise to evaluate the student presentations. A special thank you to Dr Lana Mikhaylichenko for acting as our head judge and Maryam Abdinejad as our head volunteer and volunteer organizer.

Congratulations to the award winners! For a more complete photo gallery, please visit the conference website:

<https://www.fourwav.es/souscc2019>



Category	Prize	Award Winner	Institution
Analytical	1st place (oral)	Jacob Bothen	Trent University
Analytical	2nd place (oral)	Talia Ho	University of Toronto Scarborough
Analytical	3rd place (oral)	Helen Chen	McMaster University
Biological & Medicinal	1st place (oral)	Adam Greasley	Laurentian University
Biological & Medicinal	2nd place (oral)	Jenna Daypuk	Laurentian University
Biological & Medicinal	3rd place (oral)	Rodion Gordzevich	Trent University
Chemistry Education	1st place (oral)	Tsuimy Shao	University of Toronto Scarborough
Chemistry Education	2nd place (oral)	Sun Min Kristy Lee	University of Toronto Mississauga
Chemistry Education	3rd place (oral)	Kevin Roy	University of Ottawa
Environmental	1st place (oral)	Batual Abdul Hussain	University of Toronto Scarborough
Environmental	2nd place (oral)	Zhizhen Zhang	University of Toronto Scarborough
Green Chemistry	1st place (oral)	Madison Mooney	Trent University
Inorganic & Materials	1st place (oral)	Tiffany Lai	Western University
Inorganic & Materials	2nd place (oral)	Farroq Raouf	University of Guelph
Inorganic & Materials	3rd place (oral) - tied	Benjamin Katzman	Western University
Inorganic & Materials	3rd place (oral) - tied	Alina Trofimova	University of Toronto
Organic	1st place (oral)	Michael Czuczola	Western University
Organic	2nd place (oral)	Ifrodet Georgees	University of Ontario Institute of Technology
Organic	3rd place (oral)	Jacob Rothera	University of Windsor
Physical, Computational & Theoretical	1st place (oral)	Salena Hoesterey	Western University
Physical, Computational & Theoretical	2nd place (oral)	Tzu-Ching Yen	University of Toronto
Physical, Computational & Theoretical	3rd place (oral)	Reynolds Dziobek-Garrett	University of Toronto
Poster Presentation	1st place	Zainab Mirza	University of Toronto Scarborough
Poster Presentation	2nd place	Andrew Folkerson	University of Toronto
Poster Presentation	3rd place	Xinyang Guo	University of Toronto





TORONTO SCIENCE FAIR

EVENT SUMMARY

UTSC hosted the Toronto Science Fair again on April 6th, 2019. The Toronto Science Fair program encourages Kindergarten to Grade 12 students to undertake genuine scientific inquiry and technological innovation. Students begin with a question, problem, or idea that emerges from their everyday experience or through their work at school. With support from teachers, parents, and mentors the students conduct investigations and develop innovative solutions to problems, then prepare a display and presentation of their work.

LABORATORY and HANDS-ON DEMONSTRATIONS SHUTING SOPHIA WANG AND SHADI DALILI

The Chemistry Society, under the supervision of professor Lana, two club executives together, with 8 volunteers led the laboratory portion of the event, while hands-on demos were led by Prof Dalili and Lets Talk Science in the EV atrium.

The participants in the lab were given a short training regarding safety and basic laboratory rules at undergraduate chemistry lab of University of Toronto Scarborough. They then supervised the participants

enjoy the beauty of chemistry through a series of lab experiments. The theme of the experiments is to explore the chemistry behind milk and slime. First experiment carried out was isolation of casein from milk; kids were amazed by how much casein was extracted from only 40 ml acidified milk. Volunteers also explained the basic theory and operation of IR spectrometer and melting point machine using the exacted casein as a sample. Another experiment explored the synthesis of slime.

Lets Talk Science along with 15 volunteers organized by Professor Dalili and Monica Farag, prepared various hands-on demos for participants to learn more about science with activities such as DNA extraction, elephant toothpaste, alka-seltzer rockets, squishy circuits, super stable structures, density columns, chlorophyll extraction, and many more!

All kids, volunteers and supervisors had wonderful time doing lab demonstration and hands-on demos at Toronto Science Fair and all their smiling faces were recorded in the photos!

TORONTO SCIENCE FAIR

PHOTO GALLERY



CHEMISTRY TEACHING FELLOWSHIP AWARDS

SHADI DALILI

The teaching and curriculum committee awarded two Teaching Fellowship awards this year, for undertaking pedagogical projects with the supervision of a faculty member. Congratulations to Megan Sheremata and Maryam Abdinejad on receiving these teaching fellowships.

Megan's PhD research involves the engagement of both Indigenous Knowledge (IK) and Climatology. She has almost 20 years of experience in research, government, non-profit, and industry, which provided her with a unique perspective by working at the interface of environmental science and community engagement. Her fellowship project has evolved from this experience. Megan's research suggested that environmental change is a critical issue facing the Inuit, as their lands – which comprise 35% of Canada's land mass - are changing at a rate far outpacing the rest of the world. The effects of these changes have had wide-ranging impacts on Inuit lives and livelihoods. Inuit have expressed the importance of research collaborations that engage meaningfully with Inuit traditional ecological knowledge.

There are only a few hands-on opportunities that exist in the undergraduate science classroom to explore how this can be done. Megan proposed to address this gap as a DPES Teaching Fellow by developing an engaging, problem-based learning opportunity.

Megan will work with Dr. Tanzina Mohsin, for the course Principles of Climatology, by introducing problem-based learning activities to illustrate to students how investigations in the climate sciences can engage with the priorities of northern Indigenous communities. Through this experiential learning opportunity, students will be able to: evaluate appropriate sources of Inuit knowledge based indicators of change; engage with IK while conducting analysis of climatological data; and describe how the results of climatological and IK analyses can be used together as evidence when making a scientific argument. Megan and Dr. Mohsin plan to publish a manuscript associated with the proposed fellowship activities, which will provide the opportunity to critically explore pedagogical ways of teaching challenging content linked to Indigenous knowledge.

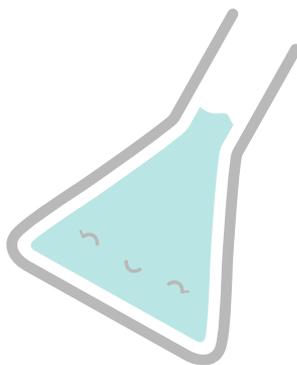
Maryam Abdinejad is a PhD student in Dr Xiao-an Zhang's lab since 2016, studying novel methods for optimized synthesis of pyridine porphyrin complexes for homogeneous electrocatalytic reduction of CO₂. For the past three years, she has been a TA for numerous 2nd and 3rd year organic courses, as well as mentor for several undergraduate students, who have gone on to graduate school and won awards at undergraduate conferences. She has done graduate studies in many universities in Iran, England, Germany and Canada and has won the 2017 UTSC graduate teaching assistant award and most recently this year, was one of 5 recipients of the tri-campus TATP TA Excellence Award.

As part of her teaching fellowship, Maryam will be working with Prof Shadi Dalili to develop new course material for the newly established tutorials in Introductory Organic Chemistry I (CHMB41H) A variety of pedagogical techniques for practicing challenging course content will be explored, along with a variety of techniques to engage students with the course material in meaningful way. Maryam and Prof Dalili plan to present their work at teaching and learning conferences in the near future..

TAKE OUR SONS AND DAUGHTERS TO WORK DAY

VITHUSHA COOMARAN

On Thursday May 2nd, 2019 UTSC faculty and staff brought their children to their workplace. EPSA and Chemistry Society led many fun and educational activities for the participants. Many chemistry demos and hands-on experiments were conducted as way to engage them with science. Professor Thavarajah supervised EPSA's bath bomb activity while Professor Mikhaylichenko and Professor Dalili supervised Chem Society's chemistry experiments in the lab, such as slime, elephant toothpaste, rainbow milk, diaper polymers to name a few. Overall, the event was a success, with lots of fun for everyone!





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MEET THE EDITORS



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