

CANADIAN CONFERENCE FOR UNDERGRADUATE WOMEN IN PHYSICS (CCUWiP)

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The goal of the Canadian Conference for Undergraduate Women in Physics (CCUWiP) is to encourage undergraduate women and minorities to continue their education in physics by providing them with an opportunity

- to experience a professional conference,
- to receive information about graduate school, undergraduate research opportunities and professions in physics,
- to have access to a network of women in physics of all ages with whom they can share experiences, advices and ideas.

The Canadian conference series is modelled after the successful APS¹ CUWiP [1] conferences held annually all over the United States. The Canadian conference is held over three days, typically during the second weekend of January, which allows undergraduate students to travel and attend the conference without excessive disruptions in their studies. The CCUWiP is held at a different university campus every year. It is primarily intended to be a regional conference such that participants can travel to the conference by car, bus or train. The size of the conference is kept around approximately 100 participants to ensure ample opportunities for participants to meet and interact with each other. The program typically includes research talks by faculty members, presentations from professionals outside academia who have a physics education, panel discussions (e.g., on topics such as graduate school, careers, and research opportunities), presentations and discussions about women in physics, student research talks and posters, and laboratory tours. One of the unique

features of the CCUWiP is that it supports the entire cost² of students participating in the conference. Participants are responsible for their travelling costs to the conference (e.g., by car, bus, train) but once at the conference location, all accommodations and catering costs are covered by the conference organization. Some travel grants are also made available in support of students with financial needs. This is a very important aspect of what the CCUWiP is about, since it ensures that any undergraduate student can participate in the conference, and not only those undergraduates who have participated in a summer research project and have secured funds through their supervisors to pay for their participation in the conference. Financial support is secured through fund raising efforts undertaken by the conference local organizing committee. The local organizing committee is typically entirely composed of undergraduate students who are driving the organizational efforts at the grass-root level, with some guidance provided by faculty member(s) and some departmental administrative assistance. Given this particular funding model, the total number of participants is limited by the conference budget. An application process is therefore in place to select, if needed, conference participants. Interested students must apply to participate in the conference in the Fall. If more applications are received than the capacity of the conference, then participants are selected based on their degree year, university, and one-paragraph justification of why they would like to participate in the conference. If required, preference is given to senior undergraduate students under the assumption that a first year student will have an opportunity to apply again next year. Participants are also chosen in such a way as to ensure representation from as many institutions as possible thereby maximizing the reach of the conference and cross-institutional networking opportunities for the participants.

The impact of the conference series is monitored through pre- and post-conference surveys completed by participants. This information is useful in determining to what extent some aspects of the conference were effective in

SUMMARY

The fourth edition of the Canadian Conference for Undergraduate Women in Physics (CCUWiP) series was held at McMaster University on 13-15 January 2017. The goals of this conference series and some of its unique aspects are described. A report on this year's conference along with historical statistics from past conferences held in Canada are presented. Ongoing initiatives in support for the continuity of this conference series are summarized.

1. American Physical Society.

2. There is a \$35 conference registration fee to minimize the number of "no-show".

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encouraging women to pursue their physics education, and what aspects could be further improved.

The first conference in this series was held at McGill University in 2014 [2], followed by conferences held at Laval University in 2015 [3], and Dalhousie in 2016 [4].

2017 CCUWIP AT MCMASTER UNIVERSITY

This year's CCUWiP conference was held at McMaster University on 13-15 January 2017 [5].

A total of 132 students from 30 different institutions participated in the conference, which received a record breaking 168 applications this year. The break down of participants per institution is provided in Table 1, along with data for earlier

TABLE 1
NUMBER OF CCUWIP CONFERENCE PARTICIPANTS
PER INSTITUTE AND TOTAL NUMBER OF APPLICATIONS
RECEIVED SINCE 2014.

	2014 McGill	2015 Laval	2016 Dalhousie	2017 McMaster
Acadia	-	-	4	1
Calgary	-	-	-	4
Carleton	2	-	2	8
CHC	-	-	-	1
Concordia	-	-	-	1
Dalhousie	-	4	9	-
Guelph	-	3	-	3
Laurentian	-	6	1	2
Laval	7	12	3	4
McGill	10	7	6	11
McMaster	7	10	3	18
Memorial	-	-	-	1
Moncton	-	-	-	1
Montreal	2	3	2	1
Mt Alison	-	3	3	-
Okanagan	-	-	1	-
Ottawa	-	-	-	2
Queen's	8	8	2	6
RMC	-	2	1	1
Ryerson	-	-	2	8

Table 1 (Continued)

	2014 McGill	2015 Laval	2016 Dalhousie	2017 McMaster
Saskatchewan	-	-	3	-
Sherbrooke	2	-	-	6
STFX	-	-	3	1
St. Mary's	-	-	9	1
SFU	-	-	-	2
Toronto	5	4	6	11
Trent	4	2	-	5
UBC	-	-	2	1
UNB	-	-	4	-
UOIT	2	-	2	7
UPEI	-	-	3	-
UWO	-	-	-	2
Waterloo	2	4	4	14
Western	-	1	-	3
WLU	-	-	-	1
York	-	6	3	4
Participants	51	75	78	132
Applications	56	110	94	168

The following acronyms are used in the table: College of the Holy Cross (CHC), Royal Military College (RMC), Saint Francis Xavier (STFX), Simon Fraser University (SFU), University of British Columbia (UBC), University of New Brunswick (UNB), University of Ontario Institute of Technology (UOIT), University of Prince Edward Island (UPEI), University of Western Ontario (UWO), Wilfrid Laurier University (WLU).

conferences. A few pictures of this year's conference are also shown in Fig. 1.

Some highlights of this year's conference are briefly summarized here.

For the first time, the CCUWiP conference participated in the live US-wide broadcast of this year's keynote speaker, Prof. Nergis Mavalvala from MIT, who provided a compelling account of the recent discovery of gravitational waves.

A more general emphasis on diversity issues in physics, not only addressing women representation, was also adopted by this year's conference through its workshop/panel offerings and organizational aspects geared at providing an all inclusive environment. This was positively commented on by several participants in the post-conference survey.

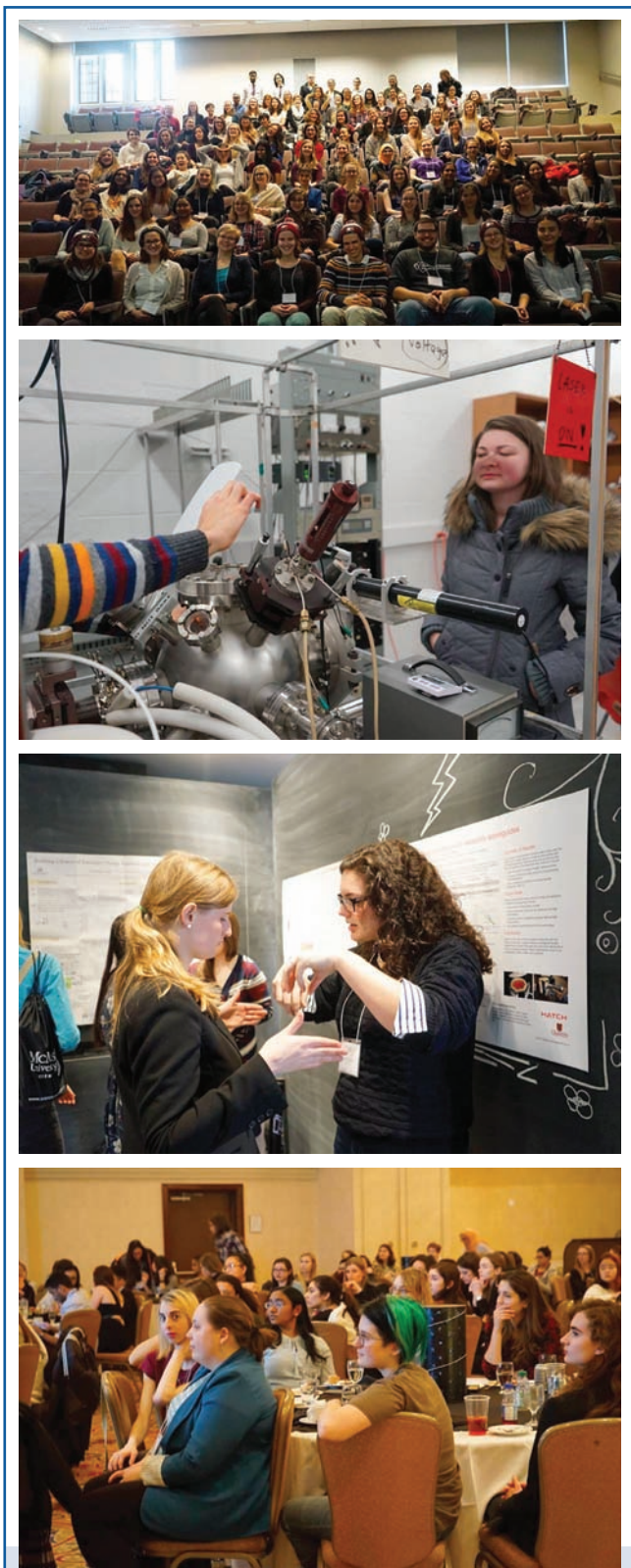


Fig. 1 Selected pictures from the 2017 CCUWiP Conference held at McMaster University.

This year's conference also offered a wide range of mini-workshops on diverse topics such as Presentation skills, Graduate Studies in Canada and in the US, Mental health, Organization of a Women in Physics club. The conference also organized a presentation on physics jobs in the industry and a facilitated discussion on the issue of implicit bias.

The analysis of the post-conference survey results shows some interesting trends. Participants reported generally feeling more like a physicist, more part of the physics community, and less isolated from the community after the conference. These results suggest that the conference was successful in creating a supportive and welcoming community for women and students from other minorities studying physics. Participants also reported after the conference feeling more strongly that others saw them as an exemplary student, suggesting they have developed a different attitude towards themselves. One issue to be improved upon is in regards to the apparent increase in participants believing that their successes are due to luck. Despite efforts from the local organizing committee to encourage speakers and panelists to emphasize what they did to get where they are, even senior faculty members will too often attribute their success disproportionately to luck. Future conferences will aim at dispelling this strongly held belief and try to further emphasize the ability of individuals to create for themselves interesting and fulfilling professional opportunities.

2018 AND BEYOND

The next Canadian CUWiP conference will be held at Queen's University on 12-14 January 2018. Announcements and opportunities to advertise this conference at each institutions will be made available in the coming months. Institutions are strongly encouraged to already plan their participation in the conference graduate fair.

Host site applications for the 2019 conference will be accepted until 1st November 2017. Interested groups are encouraged to contact Brigitte.Vachon@McGill.ca for more information. The organization of this conference is a particularly rewarding experience and one that provides undergraduate students with opportunities to develop various highly-sought professional skills.

Based on the overwhelmingly positive feedback received, the CCUWiP conference will continue to strive to set the highest standards of accommodation in order to be accessible to all participants regardless of their socioeconomic status, disability, religion, gender or other aspects of their identity.

Various initiatives are also being currently undertaken in order to ensure continuity in this successful and growing conference series in Canada. These include the ongoing development of a partnership with CAP and APS in the US. The APS coordinates a similar set of conferences held annually, and has an established national coordination structure and dedicated resources. Opportunities for long-term technical support (e.g., web application/registration, online payment system,

website hosting) are also being explored to facilitate the organization of this conference series. In Canada, there exists the capacity to simultaneously host up to two CCUWiP conferences, one in “eastern” and one in “western” Canada; or having one conference held annually that would alternate through different regions of Canada. Opportunities for securing some level of stable funding, possibly from private foundations or national granting councils (e.g., NSERC), continue to be sought.

SUMMARY

The Canadian Conference for Undergraduate Women in Physics (CCUWiP) is a conference series aimed at encouraging women and minorities to pursue their physics education and

inform them of the value of this education. Based on conference statistics and data gathered through post-conference surveys, there is a clear demand in Canada for this conference series. The fourth edition in the Canadian conference series was held at McMaster University on 13-15 January 2017, and the next conference will be hosted by Queen’s University on 12-14 January 2018. Faculty members around Canada are encouraged to advertise this conference to their undergraduate students and consider acting as mentors for the organization of this conference at their institute. Various initiatives are being currently undertaken in order to ensure the continuity of this successful and growing conference series in Canada. Interested individuals are encouraged to contact Brigitte. Vachon@McGill.ca for more information.

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