

# SERG/GRÉS News

## Looking forward to CSSE 2017!

Dear SERG friends and members,

It is with great enthusiasm that we look forward to the next gathering of the Science Education Research Group (SERG) at the Canadian Society for the Study of Education (CSSE) conference in Toronto. As usual we have planned a packed and engaging set of sessions that bring together scholars from across Canada and from international locations. You will find the SERG conference schedule on pages 6 - 11 of this newsletter. Please make a note of the keynote presentation by Professor John Wallace on Monday, May 29 at 11:15 am and the Annual General Meeting (AGM) on Tuesday, May 30 at 11:15 am. The annual SERG dinner will also be held Tuesday May 30, 6:00 pm at the Mill St Brew Pub (21 Tank House Lane; <http://millstreetbrewery.com/toronto-brew-pub/>). We hope to see you all there!

See you soon in Toronto!

Sincerely,

Christine Tippett, Todd Milford, Eun-Ji Amy Kim, Michel T. Léger, Natacha Louis, Latika Raisinghani, Dawn Wiseman, and Carol-Ann Burke

## Nous avons hâte de vous retrouver au SCÉE 2017!

Chers amis et membres du GRÉS,

C'est avec beaucoup d'enthousiasme que nous attendons la prochaine rencontre du *Groupe de recherche en éducation des sciences* (GRÉS) lors de la conférence de la *Société canadienne pour les études en éducation* (SCÉE) à Toronto. Comme toujours, nous avons prévu une séquence de sessions animées et captivantes, rassemblant des spécialistes de partout au Canada et d'ailleurs. Vous trouverez l'horaire de la conférence du GRÉS aux pages 6 à 11 du présent bulletin. Veuillez prendre note du discours de Professeur John Wallace, lundi 29 mai à 11h 15. Notez aussi la date de la *Réunion annuelle générale*, soit mardi 30 mai à 11h15. Après la réunion annuelle, nous nous rassemblons pour le souper GRÉS au *Mill St Brew Pub* à partir de 18h00 (21 Tank House Lane; <http://millstreetbrewery.com/toronto-brew-pub/>). Nous espérons vous voir en grand nombre!

Au plaisir de vous voir bientôt à Toronto!

Cordialement,

Christine Tippett, Todd Milford, Eun-Ji Amy Kim, Michel T. Léger, Natacha Louis, Latika Raisinghani, Dawn Wiseman et Carol-Ann Burke

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# SERG/GRÉS

## SERG President's Message

I have been privileged to serve as president of SERG/GRÉS this year. In 2016-2017, we saw continued growth in conference submissions and our membership figures remained strong. We became formally affiliated with two international science organizations – the International Council of Associations for Science Education [ICASE] and the Commonwealth Association of Science, Technology and Mathematics Educators [CASTME] – and I look forward to strengthening these relationships in the coming years. Also this year we are jointly sponsoring two special symposiums on engineering education with the Canadian Engineering Education Association [CEEA], one of which takes place during our SERG conference and one during CEEA's conference.

I would like to thank the members of the executive committee for their commitment and tireless efforts this year: **Todd Milford**, in the role of Vice President, served as Conference Program Chair, capably dealing with the myriad of intricacies that come with that role. **Eun-Ji Amy Kim** served as Secretary, preparing our two newsletters and generally keeping members informed. **Michel Léger** continued as our Francophone Representative (a formal executive position this year), supporting our efforts towards linguistic diversity. He was capably assisted by **Natacha Louis**, who remained as a Graduate Student Representative. She and **Latika Raisinghani**, who joined us this year as a Graduate Student Representative, sought ways to animate our student community. Both Student Reps also supported **Dawn Wiseman** in her role as Communications Officer – a position that we propose to make official at this year's AGM. Past President **Carol-Ann Burke** was always available to support the executive team, regardless of the issue at hand.

As you peruse this year's conference program, you will notice that the alternative formats we introduced last year are being incorporated again. In addition to regular paper presentations, the *Strategies and Methods* session, the combined *Keynote/Poster* session, and the *Graduate Student Rotating Roundtables* are intended to make our conference more appealing to a broader range of science education researchers – both presenters and audience members.

The **SERG/GRÉS AGM** will be held on Tuesday, May 30 at 11:15 am (Engineering LG21), and I encourage everyone to attend. We'll be reviewing events of the past year, presenting awards, electing new executive members (Secretary and Vice President) and voting on some small but important changes to the SERG/GRÉS constitution (see details in page 6 in the newsletter). You can review last year's AGM minutes on the SERG website (<http://serg-gres.ca/>).

At the AGM we will be formally congratulating the winners of this year's graduate student awards. I am pleased to announce that the winner of the SERG Dissertation Award is **Dawn Wiseman, McGill University (PhD, University of Alberta)** for her dissertation *Acts of living with: Being, doing, and coming to understand Indigenous perspectives alongside science curricula*. The winner of the Graduate Student Paper Award is **Julieta Delos Santos (University of Alberta)** for her paper *A discourse of biology teachers who use the outdoors*. **Note:** we will also be randomly awarding two graduate student travel bursaries at the AGM. Recipients of the travel bursaries must be present at the meeting and provide proof of current SERG/GRÉS membership, CSSE registration, and student status.

It seems fitting to end this message with additional thanks: first, to everyone who submitted proposals to SERG at CSSE this year; second, to the many reviewers who evaluated the record breaking number of conference submissions; third, to the members of the dissertation award adjudication committee: **Astrid Steele, Saiqa Azam, and Richard Hechter**; fourth, to the **University of Ottawa** for funding a graduate student to help with conference planning; and finally, to all SERG/GRÉS members in good standing – your membership fees make our graduate student awards possible.

Christine Tippett



### **CSSE Annual Conference 2017 Ryerson University, Toronto, ON 27- 31 May 2016**

The CSSE Annual Conference is held in conjunction with the Congress of the Humanities and Social Sciences. This bilingual conference provides an opportunity for discussion of educational issues among practitioners and educational scholars from across the nation.

### **SERG Conference Welcome**

This year, for the annual meeting of the Science Education Research Group at CSSE, we are meeting at Ryerson University in the Garden District of Toronto, Ontario with our SERG paper, poster, roundtable, and special engineering/science sessions held Monday to Wednesday (May 29 to 31, 2017). Toronto is the capital of Ontario and is the most populous city in Canada. Its name is derived from the Huron word for "fishing weir" and is on the northwest shore of Lake Ontario (one of the 5 Great Lakes). Toronto is identified as one of the most multicultural cities in the world. Over 140 languages and dialects are spoken in Toronto, and just over 30 per cent of Toronto residents speak a language other than English or French at home. Toronto has a total of about 10 million trees, approximately 4 million of which are publicly-owned. These include approximately 600,000 street trees (e.g., located on public right of ways, on boulevards, and commercial trees in sidewalks) and 3.5 million trees in parks, ravines and other natural areas.

Thank you to all who submitted proposals this year and even bigger thanks to volunteers who reviewed those proposals for the SERG sessions at CSSE 2017. We had a large increase in the number of proposals this year (up almost 20%) and we were able to include 58 submissions in the program. The range of topics is extensive, as always, representing the depth and breadth offered by the local and international members of the Canadian science education research community. We would love to see everyone there, even if you aren't presenting at SERG, come and join us as we discuss our work in a collegial and supportive environment.

This year's keynote presentation will be given on Monday, May 29 at 11:15 am, immediately preceding the SERG poster presentations. Professor John Wallace (OISE) will be sharing his stories in his talk *Wild Places and Intellectual Spaces: Science Education Landscapes and Mindscapes*. More details can be found later in this newsletter. Also of particular note this year is the *SERG-CEEA Joint Symposium on Engineering Education in the K-12 Context*, co-chaired by the Canadian Engineering Education Association (CEEA). This symposium will be held on Wednesday, May 31 at 12:15, when we will have four presentations that focus on engineering and science education.

As usual, we have planned an annual dinner and all SERG members and guests are most welcome. We've made reservations for Tuesday, May 30, 2017 at 6:00 pm at the Mill St Brew Pub (21 Tank House Lane; <http://millstreetbrewery.com/toronto-brew-pub/>). The pub is located in the Distillery Historic District. I have been assured that it is of good value and if you would like to reserve your place, email me at [tmilford@uvic.ca](mailto:tmilford@uvic.ca).

Looking forward to seeing you in Toronto!

Todd Milford, Vice President and Program Chair

## SERG Annual General Meeting / Assemblée Générale Annuelle du GRÉS

Tuesday, May 30th / Mardi 30 mai  
**11:15 am – 12:15 pm / 11h15 – 12h15**

### Agenda

1. Approval of Agenda
2. Approval of Minutes of 2016 AGM
3. Reports
  - a. President: Chris Tippett
    - i. Budget and membership
    - ii. Presentation of awards and travel bursaries
    - iii. Proposed constitutional changes
  - b. Vice-President/Conference Program Chair: Todd Milford
  - c. Secretary: Eun-Ji Amy Kim
  - d. Francophone Representative: Michel Léger
  - e. Graduate Student Representatives: Natacha Louis and Latika Raisinghani
  - f. Communications Officer: Dawn Wiseman
    - i. New URL
4. Nominations and Elections
  - a. President: Todd Milford
  - b. Vice President:
  - c. Secretary:
  - d. Graduate Student Representative:
  - e. Past President: Chris Tippett
5. Business arising from 2016 AGM
  - a. SERG/GRÉS Grad student events at CSSE
  - b. Crafting a SERG/GRÉS position statement
6. New Business
7. Motion to Adjourn

### Ordre du jour

1. Approbation de l'ordre du jour
2. Approbation du procès-verbal de l'Assemblée Générale Annuelle 2016
3. Rapports
  - a. Présidente: Chris Tippett
    - i. Budget et adhésion
    - ii. Présentation des lauréats et bourses de voyage
    - iii. Propositions changements à la constitution
  - b. Vice-Président/Responsable à la programmation-Conférence : Todd Milford
  - c. Secrétaire: Eun-Ji Amy Kim
  - d. Représentant francophone: Michel Léger
  - e. Représentants étudiants gradués: Natacha Louis and Latika Raisinghani
  - f. Responsable aux communications: Dawn Wiseman
    - i. Nouveau URL
4. Nominations et élections
  - a. Président: Todd Milford
  - b. Vice Président:
  - c. Secrétaire:
  - d. Représentants étudiants gradués:
  - e. Président sortant: Chris Tippett
5. Affaires émergentes de la Réunion annuelle générale 2016
  - a. SERG/GRÉS Événement pour étudiants gradués à la SCÉÉ
  - b. Élaboration de la mission de SERG/GRÉS
6. Nouvelles affaires
7. Motion d'ajournement

## Notice of Motions

At the SERG executive meeting held March 22, 2017, we discussed changes to be made to the responsibilities of SERG executive members. It was proposed that the president take on the responsibilities of treasurer, since s/he is the person who is able to retrieve financial information from CSSE. The secretary-treasurer would then become the secretary.

We also discussed the formalization of the position of communications officer, with the responsibilities to include maintaining the SERG web site, listserv, Facebook page, and other means of promoting science and SERG to membership and a broader audience.

When preparing the constitution to show these proposed changes, a number of small errors in the French version of the constitution (GRÉS) were also noted. A single constitutional document (available at <http://serg-gres.ca/>), containing the current constitution in English (SERG) and French (GRÉS), has been created. All proposed changes to this single document are shown in red.

The following four motions will be presented at the 2017 AGM on Tuesday, May 30 (Session 17, 11:15-12:15 p.m.) in Toronto.

### **1. Proposed amendment to article 5.1 of the SERG GRÉS constitution**

#### **Motion**

*Be it resolved that:*

*a communications officer position be added to the SERG executive committee.*

### **2. Proposed changes to the responsibilities of the president and secretary (articles 6.1 and 6.3)**

#### **Motion**

*Be it resolved that:*

*the proposed changes to responsibilities of executive members (articles 6.1 and 6.3) of the SERG constitution be accepted.*

### **3. Proposed responsibilities of the communications officer (article 6.5)**

#### **Motion**

*Be it resolved that:*

*the proposed addition of the responsibilities of the communications officer (article 6.5) be accepted.*

### **4. Consistent use of GRÉS (entire document)**

#### **Motion**

*Be it resolved that:*

*all instances of GRES be amended to GRÉS.*



## Avis de propositions

À la dernière réunion du comité exécutif du GRÉS, le 22 mars 2017, les membres ont discuté des changements à faire aux responsabilités des membres de l'exécutif du GRÉS. Il fut décidé que la présidente assume les responsabilités du ou de la trésorière, puisque c'est la présidence qui a accès aux informations financières de la SCÉÉ. Le poste de secrétaire-trésorier devient donc secrétaire tout simplement.

L'exécutif a aussi parlé de formaliser le poste d'agent de communication, qui comprendrait les responsabilités, entre autres, de maintenir le site Web du GRÉS, le « listserv », la page Facebook du groupe, ainsi que tout autre moyen de promotion de la science et du GRÉS.

En préparant l'intégration de ces changements à la constitution du GRÉS, un certain nombre d'erreurs ont été détectées dans la version française du document. Un seul document de constitution (disponible au <http://serg-gres.ca/>) a été produit et contient les versions anglaise et française de la constitution. Tous les changements proposés apparaissent en rouge.

Voici les quatre propositions qui seront présentées à l'AGA le mardi 30 mai 2017 (Session 17, 11h15 à 12h15), à Toronto.

### **1. Amendement proposé à l'article 5.1 de la constitution GRÉS / SERG**

#### **Proposition**

*Il est résolu que:*

*un poste d'agent de communication soit ajouté au comité exécutif du GRÉS.*

### **2. Changements proposés aux responsabilités du président et du secrétaire (articles 6,1 et 6,3)**

#### **Proposition**

*Il est résolu que:*

*les changements proposés aux responsabilités des membres du comité exécutif du GRÉS soient acceptés tels qu'énoncés dans la constitution (articles 6,1 et 6,3).*

### **3. Proposition des responsabilités de l'agent de communication (article 6,5)**

#### **Proposition**

*Il est résolu que:*

*les responsabilités supplémentaires proposées pour l'agent de communication soient acceptées (article 6,5).*

### **4. Utilisation uniforme du terme GRÉS partout dans la constitution**

#### **Proposition**

*Il est résolu que:*

*Le terme GRÉS, au lieu de GRES, soit utilisé partout dans la constitution.*

#### **International Science Education Conference (ISEC) 2018**

**June 19- 21, 2018**

**National Institute of Education, Singapore**

<http://www.isec2018singapore.org/>

The theme "Re-searching science education: Same issues from different lenses" aims to provide a platform for intellectual dialogue on issues in science education using alternative lenses. Many problems in science education are not new, but can be addressed with new lenses to identify different or unique strategies and solutions. The word "re-search" is intentionally hyphenated to underscore the importance of constantly re-locking and re-examining previous issues so as to gain new insights into familiar problems that confront diverse stakeholders in science education. Through such a process, the field of science education will progress and be enriched.

## 2017 Keynote Address

### Wild Places and Intellectual Spaces: Science Education Landscapes and Mindscapes



**John Wallace** is Professor of Science Education at the Ontario Institute for Studies in Education of the University of Toronto and Editor-in-Chief of the *Canadian Journal of Science, Mathematics and Technology Education*.

In a 50-year career in education on two continents, he has viewed the endeavour of science education through the eyes of a teacher, school administrator, policy consultant and academic. In this address, he revisits some of the places and spaces shaping his view of the world, and offers some thoughts about the forces shaping science [marquer STEM] education in these early decades of the 21<sup>st</sup> century.

**John Wallace** est professeur en éducation scientifique à l'Institut des Études en Éducation à l'Université de Toronto. Il siège également à titre d'éditeur en chef pour le *revue canadienne de l'enseignement des sciences, des mathématiques et des technologies*.

Ses 50 années d'expérience en tant qu'enseignant, administrateur scolaire, conseiller politique et professeur lui permettent de constater les efforts qui ont été déployés dans le domaine de l'enseignement des sciences. Dans ce discours, Professeur Wallace retrace les différents endroits et espaces qui lui ont permis de forger sa vision du monde et offre des pistes de réflexions sur les forces qui façonnent le mouvement « marquer STEM » à l'ère du 21<sup>e</sup> siècle.

### **Graduate Student Travel Bursaries**

SERG will be awarding two graduate student travel bursaries this year. One bursary will be designated for a student who is attending SERG for the first time, while the other will be available to any graduate student member of SERG. The bursaries will cover registration fees for CSSE and Congress. All attendees who are graduate members of SERG are eligible for the travel bursary whether they are presenting at the conference or not. Students may self-nominate by **May 21, 2017**, using the form available at [https://docs.google.com/forms/d/1Tgj5ZM\\_jyu64ZlwwtBmRLrcoG7tkn1JBSUQ8s8edjKo/viewform](https://docs.google.com/forms/d/1Tgj5ZM_jyu64ZlwwtBmRLrcoG7tkn1JBSUQ8s8edjKo/viewform)

**Recipients will be randomly selected at the SERG AGM. Winners must be present.**

Note: An individual may only receive a paper award or the travel bursary in any given year.

### **Bourses de voyage pour étudiants gradués**

Cette année, GRÉS offrira deux bourses de voyage à des étudiants gradués. Une première bourse sera décernée à un étudiant participant pour la première fois à la conférence GRÉS. Une deuxième bourse sera offerte à un étudiant gradué membre de GRÉS. Ces bourses couvriront les frais d'inscription pour la SCÉÉ ainsi que pour le Congrès. Tous les étudiants gradués membres du GRÉS qui assistent ou qui présentent à la conférence sont éligibles pour la bourse de voyage. Pour toutes candidatures, veuillez remplir le formulaire suivant au plus tard, le **21 mai 2017**

[https://docs.google.com/forms/d/1Tgj5ZM\\_jyu64ZlwwtBmRLrcoG7tkn1JBSUQ8s8edjKo/viewform](https://docs.google.com/forms/d/1Tgj5ZM_jyu64ZlwwtBmRLrcoG7tkn1JBSUQ8s8edjKo/viewform)

**Les récipiendaires seront sélectionnés au hasard lors de la réunion annuelle générale du GRÉS.**

**Les gagnants devront être présents.**

NB: Un individu ne peut recevoir qu'un seul prix au cours d'une année donnée

## SERG Sessions at CSSE: May 29 – May 31, 2017

### Monday 29 May / lundi le 29 mai

<p><b>Monday / lundi</b>  <b>29 May / le 29 mai</b>  <b>Session / Séance</b>  <b>8.22</b>  <b>8:15 – 9:30 am</b>  <b>8 h 15 – 9 h 30</b>  <b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 8 / Période 8 Student Interest and Attitude</b>  A study of a system wide STEM implementation in a large urban school district  <i>Erhan Sinay (Toronto District School Board), Kamini Jaipal-Jamani (Brock University)</i>  Contre le courant : Intéresser des élèves du primaire aux sciences  <i>Nicole Lirette-Pitre (Université de Moncton), Marianne Cormier (Université de Moncton), Nicole Ferguson (Université de Moncton)</i>  Étude des pratiques gagnantes en enseignement des sciences et des technologies  <i>Michel Leger (Université de Moncton), Liliane Dionne (Université d'Ottawa)</i>  STEM outreach workshops: Fostering curiosity in middle school students  <i>Stephanie Florence (York University), Darlee Gerrard (University of Toronto), Isha DeCoito (Western University)</i></p>
<p><b>Monday / lundi</b>  <b>29 May / le 29 mai</b>  <b>Session / Séance</b>  <b>10.22</b>  <b>11:15 – 12:15 pm</b>  <b>11 h 15 – 12 h 15</b>  <b>Keynote / Discours</b>  <b>d'ouverture</b>  <b>Poster / Affiches</b></p>	<p><b>Timeslot 10 / Période 10 SERG Keynote and Poster Session</b>  <b>Keynote: John Wallace (University of Toronto)</b>  <i>Wild places and intellectual spaces: Science education landscapes and mindscapes</i></p> <hr/> <p><b>Posters:</b>  Critical perspectives on equity issues in Canadian science education: Teachers theorize their experiences  <i>Wanja Gitari (University of Toronto), Sagal Ghelle (University of Toronto), Devan Singh (University of Toronto), Carolyn Solorzano (University of Toronto), Deepika Mascarenhas (University of Toronto), Andrea Carvalho (University of Toronto), Francis Nguyen (University of Toronto), Angelica Hessing (University of Toronto), Elisa De Luca (University of Toronto), Mary Jane Fandrich (University of Toronto)</i>  Framing scientific inquiry around big ideas: The cases of wolves and their ecosystems  <i>Sanya Sidhu (Lakehead University)</i>  The “M” in STEM: Exploring mathematics integration and changes in attitude and interest through STEM outreach  <i>Sheliza Ibrahim Khan (University of Western Ontario), Philip Myszkal (University of Toronto), Isha DeCoito (University of Western Ontario)</i>  Reciprocal learning, science teaching and educational inquiry  <i>Zongyi Deng (Nanyang Technological University), Yuanrong Li (South West University), Guoqiang Zhou (University of Windsor), Geri Salintri (University of Windsor)</i>  Finding and making free space to teach biology well  <i>Sharon Pelech (University of Lethbridge)</i>  Explorations of tenth-grade climate change curricula across provincial political landscapes  <i>Christina Phillips (University of Toronto)</i>  Science education and environmental responsibility in Kyrgyzstan, Turkey, and Qatar  <i>Ahmed Farooq (Queen's University)</i>  Cognitive diversity in action: Revision and further validation of a stochastic worldview analysis builder (SWAB) assessment instrument  <i>Alena Kottova (University of Victoria)</i>  Self-study research methodology self-in-practice: The scientist and the science educator  <i>Poh Tan (Simon Fraser University)</i></p>



<p><b>Monday / lundi</b>  <b>29 May / le 29 mai</b>  <b>Session / Séance</b>  <b>12.19</b></p> <p><b>1:30 – 2:45 pm</b>  <b>13 h 30 – 14 h 45</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 12 / Période 12 Strategies for Teaching Science Methods Courses</b></p> <p>Methods and strategies in science teacher education: Ready, set, OK GO! Using a music video as the context to learn and teach physics in a modern world  <i>Richard Hechter (University of Manitoba)</i></p> <p>Methods and Strategies: Science in the media as a means of proposing sociological and ethical debates  <i>Luis de Carvalho Piassi (Universidade de São Paulo), Luciana Teixeira Duarte (Universidade de São Paulo), Waleska do Valle Santos (Universidade de São Paulo), Natacha Louis (University of Ottawa)</i></p> <p>Methods and Strategies: An ongoing conversation with the science program of study in pre-service science education  <i>Dawn Wiseman (McGill University)</i></p> <p>Methods and strategies for preparing teacher candidates to provide STEAM project-based learning opportunities for their students  <i>Carol Rees (Thompson Rivers University), Beverly Ruberg (Thompson Rivers University), Edward Howe (Thompson Rivers University), Susan Lidster (Thompson Rivers University), John Churchley (Thompson Rivers University)</i></p>
<p><b>Monday / lundi</b>  <b>29 May / le 29 mai</b>  <b>Session / Séance</b>  <b>13.16</b></p> <p><b>3:00 – 4:15 pm</b>  <b>15 h 00 – 16 h 15</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 13 / Période 13 Student Centered Approaches</b></p> <p>Keep calm and touch the crocodile: The discourse mediation of human-nonhuman interspecies interactions  <i>Rute Monteiro (University of Algarve / Universidade do Algarve), Giuliano Reis (University of Ottawa)</i></p> <p>Association of dialogue forms and particular situations in a seventh/eight grade classroom in the Steps to Inquiry project  <i>Carol Rees (Thompson Rivers University)</i></p> <p>Orchestrational patterns within a knowledge community and inquiry approach to secondary physics  <i>Alisa Acosta (University of Toronto)</i></p> <p>The teacher's role in orchestrating a knowledge community and inquiry classroom  <i>Maria Serevetas (University of Toronto)</i></p>
<p><b>Monday / lundi</b>  <b>29 May / le 29 mai</b>  <b>Session / Séance</b>  <b>14.13</b></p> <p><b>4:30 – 5:45 pm</b>  <b>16 h 30 – 17 h 45</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 14 / Période 14 Instructional Practices</b></p> <p>Swimming with dolphins: Science and egomorphism at the zoo  <i>Giuliano Reis (University of Ottawa), Rute Monteiro (University of Algarve/ Universidade do Algarve)</i></p> <p>Development of elementary students' metacognition in collaborative problem-solving  <i>Qingna Jin (University of Alberta), Mijung Kim (University of Alberta)</i></p> <p>Examination of outcomes from a blended professional development program for science teachers  <i>Xavier Fazio (Brock University), Kamini Jaipal-Jamani (Brock University), Malisa Mezenberg (Science Teachers' Association of Ontario)</i></p> <p>"You don't often know how to best help them": Exploring barriers experienced by college science professors in teaching students with learning disabilities  <i>Neerusha Baurhoo (McGill University), Anila Asghar (McGill University)</i></p>

## Tuesday 30 May / mardi le 30 mai

<p><b>Tuesday / mardi</b> <b>30 May / le 30 mai</b> <b>Session / Séance</b> <b>15.17</b> <b>8:15 – 9:30 am</b> <b>8 h 15 – 9 h 30</b> <b>Multi-paper /</b> <b>Plusieurs</b> <b>communications</b></p>	<p><b>Timeslot 15 / Période 15 Cultural Perspectives</b></p> <p>What you learned won't go away: The impacts of a teacher education exchange program on Chinese teacher candidates' understanding of and practice in science teaching <i>George Zhou (University of Windsor), Junyi Zhang (University of Windsor), Tian Liu (University of Windsor), Peiyu Wang (University of Windsor), Yuanrong Li (Southwest University), Chengyin Fu</i></p> <p>Investigating Kenyan students' science learning perspectives <i>Samson Nashon (University of British Columbia), David Anderson (University of British Columbia)</i></p> <p>Paradoxes in integrating cultural knowledges in diversity-rich science and mathematics <i>Latika Raisinghani (University of British Columbia)</i></p> <p>Science education in Nunavut: Where is the Inuit worldview? <i>Barbara McMillan (Faculty of Education University of Manitoba)</i></p>
<p><b>Tuesday / mardi</b> <b>30 May / le 30 mai</b> <b>Session / Séance</b> <b>16.14</b> <b>9:45 – 11:15 am</b> <b>9 h 55 – 11 h 15</b> <b>Multi-paper /</b> <b>Plusieurs</b> <b>communications</b></p>	<p><b>Timeslot 16 / Période 16 Informal Science Education</b></p> <p>Urban high school students expose the pedagogical implications of science theatre <i>Lydia E Carol-Ann Burke (University of Toronto), Anne Wessels (University of Toronto)</i></p> <p>Bridging the gap between science and creativity through the science creative literacy symposia <i>Tathali Urueta (National Pedagogic University), Latika Raisinghani (University of British Columbia), Janice Valdez (University of British Columbia), Marie-Claire Shanahan (University of Calgary), David Ng (University of British Columbia.)</i></p> <p>Sexuality outside school: When dialogue meets participation and action in a science museum exhibit <i>Ana Maria Navas Iannini (University of Toronto), Erminia Pedretti (University of Toronto)</i></p> <p>Public encounters with nonhuman animals: How zoo interpreters talk about their work and the potential implications for science education <i>Adriana Braga (Federal University of São Paulo), Giuliano Reis (University of Ottawa), Rute Monteiro (University of Algarve), Luis Paulo Piassi (University of Sao Paulo)</i></p>
<p><b>Tuesday / mardi</b> <b>30 May / le 30 mai</b> <b>11:15 – 12:15 pm</b> <b>11 h 15 – 12 h 15</b></p>	<p><b>Timeslot 17 / Période 17 SERG-GRÉS AGM</b></p>
<p><b>Tuesday / mardi</b> <b>30 May / le 30 mai</b> <b>Session / Séance</b> <b>19.15</b> <b>1:30 – 2:45 pm</b> <b>13 h 30 – 14 h 45</b> <b>Multi-paper /</b> <b>Plusieurs</b> <b>communications</b></p>	<p><b>Timeslot 19 / Période 19 Digital Technology</b></p> <p>Investigating the effect of engagement with robotics on pre-service teachers' self-efficacy, science knowledge and computational thinking <i>Kamini Jaipal-Jamani (Brock University), Charoula Angeli (University of Cyprus)</i></p> <p>Beyond instrumental clichés: Conceptual art and the aesthetics of computing in public <i>Pratim Sengupta (University of Calgary), Derek Beaulieu, Marie-Claire Shanahan (University of Calgary), Weston Sandberg</i></p> <p>Recoding figured worlds: Science, play and public computing <i>Marie-Claire Shanahan (University of Calgary), Pratim Sengupta (University of Calgary)</i></p> <p>Undergraduate science learners report assembly approaches to problem-based learning online discussions <i>Michael-Anne Noble (University of Victoria, Royal Roads University)</i></p>

<p><b>Tuesday / mardi</b>  <b>30 May / le 30 mai</b>  <b>Session / Séance</b>  <b>20.14</b></p> <p><b>3:00 – 4:15 pm</b>  <b>15 h 00 – 16 h 15</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 20 / Période 20 Career STEM</b></p> <p>Understanding the state of STEM, innovation, and entrepreneurship education  <i>Man-Wai Chu (University of Calgary), Marie-Claire Shanahan (University of Calgary), Gabriela Alonso Yanez (University of Calgary), Caitlin Quarrington, Mark Zwicker, Julie-Anne Fritz (Mount Royal University), Lynn Moorman (Mount Royal University), Douglas MacDonald (Mount Royal University)</i></p> <p>Finding common ground among STEM, ocean sciences, and career education: Where are our youth going?  <i>Laura Stiles Clarke (St. Francis Xavier University), Katarin MacLeod (St. Francis Xavier University)</i></p> <p>Exploring the impact of STEM outreach on teacher STEM career awareness  <i>Philip Myszkal (University of Toronto), Isha DeCoito (University of Western Ontario)</i></p> <p>Teaching, technology, and STEM career trajectories: A longitudinal study of STEM outreach in middle school  <i>Tasha Richardson (University of Toronto), Isha DeCoito (Western University)</i></p>
<p><b>Tuesday / mardi</b>  <b>30 May / le 30 mai</b>  <b>6:00 pm / 18h00</b></p>	<p><b>Mill St Brew Pub (21 Tank House Lane)</b>  <a href="http://millstreetbrewery.com/toronto-brew-pub/">http://millstreetbrewery.com/toronto-brew-pub/</a></p>
<p><b>Wednesday 31 May / mercredi le 31 mai</b></p>	
<p><b>Wednesday / mercredi</b>  <b>31 May / le 31 mai</b>  <b>Session / Séance</b>  <b>22.13</b></p> <p><b>8:15 – 9:30 am</b>  <b>8 h 15 – 9 h 30</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 22 / Période 22 Environmental Education</b></p> <p>Muddying the waters: Environmental education through practice-theory disruptions  <i>Katherine Bellomo (University of Toronto), Erminia Pedretti (University of Toronto)</i></p> <p>National roundtable on environmental sustainability education in initial teacher education  <i>Maurice DiGiuseppe (University of Ontario Institute of Technology), Paul Elliott (Trent University), Hilary Inwood (University of Toronto), Douglas Karrow (Brock University)</i></p> <p>A framework for the design of curriculum and programs that foster environmental identity development and stewardship behaviour in students  <i>Wendy Simms (University of Calgary, Vancouver Island University)</i></p> <p>For the Birds: Citizen science education approaches in the elementary classroom  <i>Lorna MacLean (University of Ottawa), Christine Tippett (University of Ottawa), Jenn Bergen (University of Ottawa), Jamilee Baroud (University of Ottawa)</i></p>
<p><b>Wednesday / mercredi</b>  <b>31 May / le 31 mai</b>  <b>Session / Séance</b>  <b>23.16</b></p> <p><b>9:45 – 11:00 am</b>  <b>9 h 45 – 11 h 00</b></p> <p><b>Multi-paper /</b>  <b>Plusieurs</b>  <b>communications</b></p>	<p><b>Timeslot 23 / Période 23 Models and Connections</b></p> <p>Kinesthetic simulations: Model-based teaching and learning in science  <i>Grant Williams (St. Thomas University)</i></p> <p>Analyzing teachers' interactions and collaborations in STEM learning sessions  <i>Gabriela Alonso-Yanez (University of Calgary), Paulino Preciado Babb (University of Calgary), Barbara Brown (University of Calgary)</i></p> <p>We are (mostly) all related: Why is it so hard to figure that out?  <i>Dawn Wiseman (McGill University), Jerine Pegg (University of Alberta)</i></p> <p>A tool to analyze science teachers' pedagogical content knowledge from general to topic-specific PCK: The four-level PCK continuum  <i>Saiqa Azam (Memorial University of Newfoundland)</i></p>

<p><b>Wednesday / mercredi</b></p> <p><b>31 May / le 31 mai</b></p> <p><b>Session / Séance 24.13</b></p> <p><b>11:15 – 12:15 pm</b> <b>11 h 15 – 12 h 15</b></p> <p><b>Roundtables / Tables rondes</b></p>	<p><b>Timeslot 24 / Période 24 SERG Graduate Student Roundtables</b></p> <p>A discourse of biology teachers who use the outdoors <i>Julieta Delos Santos (University of Alberta)</i></p> <p>Problem solving and design thinking: The importance of promoting creativity in science teaching <i>Natacha Louis (Université d'Ottawa)</i></p> <p>“New skills, new ways, simple ways”: Participants experiences from an intuitive eating and simple foods-oriented workshop series <i>Daniel Atkinson (University of Toronto)</i></p> <p>Breaking cultural barriers: Self-study in science education <i>Ciara Morgan-Feir (Simon Fraser University)</i></p>
<p><b>Wednesday / mercredi</b></p> <p><b>31 May / le 31 mai</b></p> <p><b>Session / Séance 25.2</b></p> <p><b>12:15 – 1:15 pm</b> <b>12 h 15 – 13 h 15</b></p> <p><b>Multi-paper / Plusieurs communications</b></p>	<p><b>Timeslot 25 / Période 25 SERG-CEEA Joint Symposium: Engineering Education in the K-12 Context</b></p> <p><b>Chair and discussant:</b> Marie-Claire Shanahan (University of Calgary)</p> <p>Engineering as articulated in Canadian science curriculum documents <i>Dawn Wiseman (McGill University), Christine Tippett (University of Ottawa), Rachel Sherry-Lynda Mendoza, (University of Ottawa)</i></p> <p>The clear pathways from K-12 into engineering initiative at the Engineering Change Lab: An 'engineering-inclusive' STEM strategy <i>Franz Newland (York University), Erica Lee Garcia (Engineers Without Borders), Tracy Ross (ACTUA), Rebecca White (Engineers Without Borders), Mary Wells (University of Waterloo), Adam Roberts (Suncor Energy), Lisa Cole (Durham District School Board), Elijah Van Houten (Université de Sherbrooke)</i></p> <p>Cultural production of engineering "competence" and meaning-making in the elementary classroom <i>Megan R. Lancaster, Heidi B. Carlone, Jen R. Mangrum, (University of North Carolina, Greensboro)</i></p>
<p><b>Wednesday / mercredi</b></p> <p><b>31 May / le 31 mai</b></p> <p><b>Session / Séance 26.12</b></p> <p><b>1:30 – 2:45 pm</b> <b>13 h 30 – 14 h 45</b></p> <p><b>Multi-paper / Plusieurs communications</b></p>	<p><b>Timeslot 26 / Période 26 Values, Contradictions, and Connections</b></p> <p>Addressing contradictions in teaching science, technology, engineering and mathematics (STEM): An activity theory perspective <i>Karen Goodnough (Memorial University of Newfoundland)</i></p> <p>Values underpinning STEM education in the USA: Analysis of the Next Generation Science Standards <i>Darren Hoeg (University of Toronto)</i></p> <p>Reconfiguring the optics of the critical gaze in science education (after the critique of critique): (Re)thinking “what counts” through Foucaultian prisms <i>Marc Higgins (University of Alberta)</i></p> <p>Connections between science fair project titles, their economic potential, and science fair prizes <i>G. Michael Bowen (Mount Saint Vincent University), Kimberley P Good (Dalhousie University), J. Lawrence Bencze (University of Toronto)</i></p>

Please check your membership details for this year! If they do not include SERG as a Special Interest Group, please contact Barb Ford at [mmb\\_services@csse.ca](mailto:mmb_services@csse.ca) so that she can make the necessary changes.