Program Addendum

This addendum lists presentations that were missing some information, were changed to a different format, have a substitution in presenting author, or were withdrawn. Within each subsection, items are ordered by date, time, and Strand.

LAST UPDATE 26 MARCH 2022

Additional Events

CADASE Graduate Student Social Event
March 30, 2022; 12:00 Noon - 1:15 PM Pacific Daylight Time
Presider: Kelly Shepard

Description: Graduate students who pursue doctoral degrees in science education experience a professional benefit when they network with the academic community. The CADASE Graduate Student Committee will host a social event that will allow graduate students who are members of the CADASE RIG to interact with CADASE faculty. The goal of the session is to give graduate students an opportunity to engage in a process that models the practice of peer-review. In this session, the graduate students, who are in various stages of their Ph.D. programs, will share excerpts of their research with CADASE faculty, who can offer advice on how to successfully navigate academia.

Strand 10: Curriculum and Assessment
Related Paper Set—Bringing researcher perspectives and research-based approaches to the design of instructional materials for broad use
March 27, 2022, 3:00 PM-4:30 PM, Burrard
Building Relevance to Students’ Lives in an Astronomy Unit
Jamie Deutch Noll, CU Boulder
Zoë Buck Bracey, BSCS Science Learning

Additional Presentations

Strand 10: Curriculum and Assessment
Admin Symposium-Future Directions for Research on Equitable and Socially Just Assessments in Science and Engineering Education (Virtual)
March 30, 2022, 10:30 AM-12:00 PM, Burrard
Moving Beyond the ‘Accommodation’: Expanding What it Means to Be Good and Learn Sciences Using Non-traditional Assessments
Hosun Kang, Seoul National University, South Korea

Withdrawn Presentations

Strand 4: Science Teaching — Middle and High School (Grades 5-12): Characteristics and Strategies
SC-organized paper set-Designing and enacting pedagogy for secondary classrooms
March 28, 2022, 8:00 AM-9:30 AM, Parq Salon C
Exploration of Teacher Discursive Claims Enacting Social Justice Pedagogy in 7th grade Science (Virtual)
Fredrica Nash, The George Washington University
Strand 10: Curriculum and Assessment

*SC-organized paper set-Assessment for modeling and reasoning*
March 28, 2022, 2:45 PM-4:15 PM, Parq Salon C

*Scaffolding Support for Student Modeling in Three Dimensional Assessment Tasks*
Kate Henson, University of Colorado
Jason Buell, CU Boulder

Strand 13: History, Philosophy, Sociology, and Nature of Science

*SC-organized paper set-Sociocultural and socio-scientific issues*
March 29, 2022, 2:00 PM-3:30 PM, Stanley

*Effects of Subsuming Standards-based Objectives within the SSI Framework on Content Acquisition and Global Citizenship*
Karrie A. Wikman, University of South Florida

Strand 5: College Science Teaching and Learning (Grades 13-20)

*SC-organized paper set-Learning About Science, Engineering and Social Issues*
March 29, 2022, 5:20 PM-6:50 PM, Parq Salon C

*Investigating graduate student and instructors' course experiences "Teaching and Learning Science for Social Justice"*
Iesha Jackson, University of Nevada- Las Vegas
Tina Vo, University of Nevada- Las Vegas
Sabrina Barakat, University of Nevada- Las Vegas
Nicole J. Thomas, University of Nevada, Las Vegas
Sarah York, University of Nevada- Las Vegas
Abigale Ly, University of Nevada- Las Vegas

**Missing or incorrect information**

The name of Miray Tekkumru Kisa was spelled incorrectly in the Conference Program. We regret the error.

**Pre-conference workshop**

March 27, 2022, 8:00 AM - 11:45 AM, Kitsilano Ballroom A

*Teaching and Learning Sciences in a ‘Post-Truth’ Society: New Roles for Socio-Scientific Issues*
Additional Organizer: Joel Wiebe, University of Toronto

**Strand 13: History, Philosophy, Sociology, and Nature of Science SC-organized paper set-NOS and Undergraduate Education**
2:45 PM-4:15 PM, Parq Salon F
March 28, 2022, *Comparing Undergraduates NOS Views in Traditional vs. Inquiry-Taught Science Course*
Missing institutional affiliation: Alex T. St. Louis, Texas Christian University

**Admin Symposium-Graduate Student Research Symposium**
March 27, 2022, 3:00 PM-4:30 PM, Kitsilano Ballroom D
Additional Organizer: Klaudja Caushi, University of Massachusetts, Boston
Strand 5: College Science Teaching and Learning (Grades 13-20)
SC-organized paper set-Learning About Science, Engineering and Social Issues
March 29, 2022, 5:20 PM-6:50 PM, PM, Parq Salon C
Engineering students' self-efficacy and civic responsibility in a social innovation curriculum
Missing first author: Ekundayo Shittu, George Washington University

Strand 1: Science Learning: Development of student understanding
SC-organized paper set-Modelling in Science Learning
March 30, 2022, 1:30 PM-3:00 PM, Parq Salon D
Scaffolding Sociopolitical Dimensions of Climate Change in Diagrammatic Models (Virtual)
Corrected author list:
Heather F. Clark, UCLA
Darlene Tieu, LAUSD

Changed to virtual format

Strand 7: Pre-service Science Teacher Education
Symposium-Building an Elementary Science Teacher Education Community to Advance Equity and Justice (Virtual)
March 27, 2022, 3:00 PM-4:30 PM, Cambie
Panelists
Christa Haverly, Northwestern University
Terrance Burgess, Michigan State University
Marti Canipe, Northern Arizona University
Tina Cheuk, California Polytechnic State University
Judith A. Cooper-Wagoner, University of Arizona
Amal Ibourek, Florida State University
Thomas J McKenna, Boston University
Meenakshi Sharma, Mercer University
Christina V. Schwarz, Michigan State University
Felicia Moore Mensah, Teachers College, Columbia University
Elizabeth A. Davis, University of Michigan
Kristin Gunckel, University of Arizona

Strand 10: Curriculum and Assessment Related Paper Set-Bringing researcher perspectives and research-based approaches to the design of instructional materials for broad use
March 27, 2022, 3:00 PM-4:30 PM, Burrard
Bringing a Science Education Research Perspective to the Development of Instructional Materials for Broad Use (Virtual)
Daniel C. Edelson, BSCS Science Learning
Brian J. Reiser, Northwestern University
Katherine L. McNeill, Boston College
William R. Penuel, University of Colorado
Shelly LaDoux, The Dana Center
Strand 11: Cultural, Social, and Gender Issues
SC-organized paper set - Belonging and Retention in Postsecondary STEM
March 27, 2022, 3:00 PM-4:30 PM, Stanley
Retaining Underrepresented Minorities in STEM Majors: The Role of Mentoring in the First Year (Virtual)
Stacy Olitsky, Saint Joseph’s University

Administrative Session: Equity And Ethics Committee
Admin Symposium - Jhumki Basu Poster Symposium
March 27, 2022, 4:45 PM-6:15 PM, Kitsilano Ballroom D
Experiences of prospective and novice science teacher educators during the design of k-12 science methods courses (Virtual)
José Pavez, University of Georgia

Strand 2: Science Learning: Contexts, Characteristics and Interactions
Related Paper Set - Students and teachers’ challenges explaining the mechanism of complex systems and suggestions to address them
March 27, 2022, 4:45 PM-6:15 PM, Parq Salon B
Using concept maps to evaluate preservice biology teachers’ conceptualization of Covid-19 as a complex phenomenon (Virtual)
Tom Bielik, Freie Universität Berlin
Moritz Krell, Freie Universität
Berlin Johannes Jageman,
Dirk Krueger, Freie Universitaet Berlin
Orit Ben Zvi Assaraf, Ben-Gurion University of the Negev, Israel

Strand 4: Science Teaching — Middle and High School (Grades 5-12): Characteristics and Strategies
SC-organized paper set - Science teaching practices in secondary content areas
March 27, 2022, 4:45 PM-6:15 PM, Parq Salon C
Capturing a Teacher’s Multidimensional and Dynamic Attention to Student Learning in Design-Based Chemistry Education (Virtual)
Hanna Stammes, Delft University of Technology & Radboud University
Ineke Henze, Radboud University
Marc de Vries, Delft University of Technology
Erik Barendsen, Radboud University & Open University

Strand 14: Environmental Education and Sustainability
SC-organized paper set - Innovative approaches in environmental science education
March 27, 2022, 4:45 PM-6:15 PM, Kitsilano Ballroom C
Weatherblur: Powering the Science Learning Process with Co-Created Citizen Science (Virtual)
Ruth Kermish-Allen, Maine Mathematics and Science Alliance
Alexandria Brasili, Maine Mathematics and Science Alliance

Strand 1: Science Learning: Development of student understanding
SC-organized paper set - Pedagogical Approaches to Enhance Science Understanding
March 28, 2022, 8:00 AM-9:30 AM, Kitsilano Ballroom A
Please Mind the Gap: Black Boxes as a Pedagogical Construct in the Biology Classroom (Virtual)
Gur Arie Livni Alcasid, Department of Science Teaching, Weizmann Institute of Science
Michal Haskel Ittah, The Weizmann Institute Of Science
Strand 2: Science Learning: Contexts, Characteristics and Interactions
SC-organized paper set-Science Teaching & Learning during the Pandemic
March 28, 2022, 8:00 AM-9:30 AM, Cambie
Investigating the Triple Threat of COVID-Necessitated Online Engineering Courses to Diverse Students' Sense of Belonging (Virtual)
Thomas R. Tretter, University of Louisville
Brian S Robinson, University of Louisville
Jessica B Buckley, University of Louisville Alex Hammond, University of Louisville

Strand 7: Pre-service Science Teacher Education
SC-organized paper set-Innovation and enhancement of science practices
March 28, 2022, 8:00 AM-9:30 AM, Granville I
Preservice Science Teachers’ Descriptions of Simulation-enhanced Inquiry-based Lesson for Asynchronous Learning Environments (Virtual)
Ilgim Ozergun, Bogazici University
Sevil Akaygun, Bogazici University

Strand 8: In-service Science Teacher Education
SC-organized paper set-The Role of Collaboration in Teacher Learning
March 28, 2022, 11:00 AM-12:30 PM, Granville II
Experienced Teachers' Thinking about NGSS Classroom Assessment: Resources, Coherences with Instruction, and Shifts through Co-Design (Virtual)
Jennifer Richards, Northwestern University
Olivia D. Masse, Northwestern University
Kevin Cherbow, Florida State University
Miray Tekkumru Kisa, Florida State University

Strand 11: Cultural, Social, and Gender Issues
SC-organized paper set-Critical Race Theory and Other Race Critical Approaches to STEM Education
March 28, 2022, 11:00 AM-12:30 PM, Kitsilano Ballroom D
A Critical View of STEM Curriculum from the LatCrit Perspective (Virtual)
Gianna Lopez-Colson, University of Texas Rio Grande Valley
Joe De Leon, University of Texas Rio Grande Valley
Roxana Jimenez, University of Texas Rio Grande Valley

Strand 13: History, Philosophy, Sociology, and Nature of Science
SC-organized paper set-NOS and Science Pedagogy and instruction
March 28, 2022, 11:00 AM-12:30 PM, Burrard
Exploring the Articulation of Nature of Science Ideas in Turkish Middle School Science Textbooks (Virtual)
Beyza Okan, Bogazici University
Ebru Kaya, Bogazici University

Strand 8: In-service Science Teacher Education
SC-organized paper set-Developing Teacher Leaders
March 28, 2022, 2:45 PM-4:15 PM, Kitsilano Ballroom C
Knowledge, Practices, and Attributes of International Science Coordinators and the Resources They Draw Upon: Supporting Teachers During the COVID-19 Pandemic (Virtual)
Harleen Singh, Medaille College
Hatice Ozen_Tasmedir, University of Georgia
Strand 3: Science Teaching — Primary School (Grades preK-6): Characteristics and Strategies
Roundtables-Strands 1,3: Elementary Science!
March 29, 2022, 8:00 AM-8:50 AM
Revisiting elementary school students' images of scientists (Virtual)
Jing Lin, Beijing Normal University
Wenting Wei, Beijing Normal University
Ting Yuan, Beijing Normal University

Strand 2: Science Learning: Contexts, Characteristics and Interactions
Roundtables-Strand 2 Round Table: Argumentation in Science Teaching & Learning I
March 29, 2022, 8:00 AM-8:50 AM
Categorizing Classroom-based Argumentation in Elementary STEM Lessons: Applying Walton's Dialogue Theory (Virtual)
Anna Gillespie-Schneider, UGA
Lorraine Franco, University of Georgia
Barbara A. Crawford, University of Georgia
Yuling Zhuang, University of Georgia Jonathan Foster, University of Georgia
AnnaMarie Conner, University of Georgia

Strand 10: Curriculum and Assessment
SC-organized paper set-Curriculum and assessment for science learning
March 29, 2022, 9:00 AM-10:30 AM, Parq Salon A
Designing Biomimetic Robots: Examining Middle School Students' Knowledge in an Interdisciplinary Environment (Virtual)
Michael Cassidy, TERC
Debra Bernstein, TERC
Gillian Puttick, TERC
Fayette Shaw, Tufts University
Kristen Wendell, Tufts University
Ethan Danahy, Tufts University

Strand 2: Science Learning: Contexts, Characteristics and Interactions
SC-organized paper set-Distance/online Science Teaching & Learning
March 29, 2022, 2:00 PM-3:30 PM, Kitsilano Ballroom D
Science Teaching Practices and Student Engagement in HyFlex Learning Environments (Virtual)
Hong H. Tran, University of Georgia
Yuxi Huang, University of Georgia
Cheng-Wen (Nuby) He, University of Georgia
Brooke A. Whitworth, Clemson University
Strand 6: Science Learning in Informal Contexts

SC-organized paper set-Informal learning in the community
March 29, 2022, 2:00 PM-3:30 PM, Parq Salon D (livestream 1)
Youth Environmental Science Learning and Agency: a Unifying Lens Across Community and Citizen Science Settings (Virtual)
Ana I. Benavides Lahnstein, Natural History Museum, London, UK
Heidi L. Ballard, University of California, Davis, CA, USA
Maryam Ghadiri Khanaposhtani, University of California, Davis, CA, USA
Julia Lorke, IPN - Leibniz Institute for Science and Mathematics Education, Kiel, Germany
Annie E. Miller, California Academy of Sciences, San Francisco, CA, USA
Jessie Jennewein, Natural History Museum of Los Angeles County, CA, USA
Sasha Pratt-Taweh, Natural History Museum, London, UK
Christothea Herodotou, The Open University, Milton Keynes, UK
Victoria J. Burton, Natural History Museum, London, UK
Maria Aristeidou, The Open University, Milton Keynes, UK
Lila Higgins, Natural History Museum of Los Angeles County, CA, USA
Lucy D. Robinson, Natural History Museum, London, UK
Alison N. Young, California Academy of Sciences, San Francisco, CA, USA
Grant Miller, The University of Oxford, Oxon, UK
Gregory B. Pauly, Natural History Museum of Los Angeles County, CA, USA
Rebecca F. Johnson, California Academy of Sciences, San Francisco, CA, USA

Strand 8: In-service Science Teacher Education

SC-organized paper set-Professional Learning for STEM
March 29, 2022, 2:00 PM-3:30 PM, Kitsilano Ballroom B
What Works in K-12 STEM Professional Development Programs?: A Meta-Analysis of its Impacts on Teachers and Students (Virtual)
Hye Sun You, Arkansas Tech University
Sunyoung Park, California Lutheran University
Minju Hong, University of Georgia

Strand 12: Technology for Teaching, Learning, and Research

SC-organized paper set-Fostering scientific inquiry through applications of technology
March 29, 2022, 2:00 PM-3:30 PM, Cambie
Research of Online Scientific Inquiry with/without Computer Simulation on 8th Graders' Performance of Scientific Inquiry (Virtual)
Ren-Jye Chou, Institute of Education National Yang Ming Chiao Tung University
Hsiao-Ching She, Institute of Education National Yang Ming Chiao Tung University
Meng Jun Chen, Institute of Education National Yang Ming Chiao Tung University

Strand 13: History, Philosophy, Sociology, and Nature of Science

SC-organized paper set-Sociocultural and socio-scientific issues
March 29, 2022, 2:00 PM-3:30 PM, Stanley
Developing Argumentation Skills on Socio-Scientific Issues through Evaluating Digital Sources and Engaging in Reflective Discussions (Virtual)
Shaghig Garo Chaparian, New York University
Saouma B. Boujaoude, American University Of Beirut
Strand 2: Science Learning: Contexts, Characteristics and Interactions
Related Paper Set-The Influence of Religious Identity in Evolution Education
March 29, 2022, 3:40 PM-5:10 PM, Parq Salon A
Evolution Education in Light of the Conception of Religious Science Teachers and Scientists towards Evolution and Religion (Virtual)
Author list was incorrect; corrected list is given below
Reut Stahi-Hitin, Department of Science Teaching, Weizmann Institute of Science, Rehovot, Israel
Anat Yarden, Department of Science Teaching, Weizmann Institute of Science, Rehovot, Israel

Strand 2: Science Learning: Contexts, Characteristics and Interactions
Related Paper Set-The Influence of Religious Identity in Evolution Education
March 29, 2022, 3:40 PM-5:10 PM, Parq Salon A
Religious Cultural Competence in Evolution Education and its Association with Changes in Student Acceptance of Evolution across the United States
Author list was incorrect; corrected list is given below
M. Elizabeth Barnes, Department of Biology, Middle Tennessee State University, USA
Hayley Dunlop, Ohio State University Medical School, USA
Julie Roberts, Psychology Department, Northwestern University, USA

Strand 10: Curriculum and Assessment
SC-organized paper set-Methodological approaches to designing science assessment tasks
March 29, 2022, 3:40 PM-5:10 PM, Parq Salon D
Designing for Engineering: A Model for Integrating Engineering and Science NGSS Middle School Benchmark Assessments (Virtual)
Maia K. Binding, UC Berkeley - Lawrence Hall of Science
Lauren Brodsky, The Learning Design Group

Strand 13: History, Philosophy, Sociology, and Nature of Science
SC-organized paper set-Nature of Science in K-12 Education
March 29, 2022, 3:40 PM-5:10 PM, Kitsilano Ballroom C
Middle School Students’ Understanding of Nature of Science and Their Metacognitive Awareness (Virtual)
Dilara Goren, Bogazici University
Ebru Kaya, Bogazici University

Strand 5: College Science Teaching and Learning (Grades 13-20)
SC-organized paper set-Student Learning in Remote Contexts: Labs and Research
March 30, 2022, 8:45 AM-10:15 AM, Kitsilano Ballroom A
The Varied Student Experience with Transitioning to Mandatory Online Chem Lab (Virtual)
Joseph V Watts, University of Florida
Corey A. Payne, University Of Florida
Kent J. Crippen, University of Florida
Lorelie Imperial, University of Florida
Melanie Veige, University of Florida
Strand 7: Pre-service Science Teacher Education

**SC-organized paper set-Tools for Assessment in Preservice teacher learning**
March 30, 2022, 8:45 AM-10:15 AM, Kitsilano Ballroom B

*Investigating Pre-service Science Teachers' Modeling Metaknowledge with Open-Ended Questions and Diagrams (Virtual)*
Paul Engelschalt, Humboldt-Universität zu Berlin
Tom Bielik, Freie Universität Berlin
Moritz Krell, IPN - Leibniz Institute for Science and Mathematics Education, Kiel, Germany
Dirk Krüger, Freie Universität Berlin
Annette Upmeier Zu Belzen, Humboldt-Universität zu Berlin

**Strand 5: College Science Teaching and Learning (Grades 13-20)**

**SC-organized paper set-Student Persistence and Well-Being**
March 30, 2022, 10:30 AM-12:00 PM, Parq Salon C

*Effect of a Year-long Career-forward Chemistry Laboratory Curriculum on Persistence of Students Majoring in Engineering (Virtual)*
Corey A. Payne, University Of Florida
Kent J. Crippen, University of Florida

**Strand 2: Science Learning: Contexts, Characteristics and Interactions**

**SC-organized paper set-High school Science Teaching & Learning**
March 30, 2022, 1:30 PM-3:00 PM, Cambie

*Students' Types of Interest in Physics (Virtual)*
Sarah Maria Zoechling, Julia Woithe, CERN
Sascha M. Schmeling, CERN
Martin Hopf, University of Vienna

**Strand 11: Cultural, Social, and Gender Issues**

**SC-organized paper set-Approaches to Equitable Science Teaching in K-12 Classrooms**
March 30, 2022, 1:30 PM-3:00 PM, Stanley

*Challenges Encountered by Multilingual Learners while Reading to Learn Science: The Role of Intertextuality (Virtual)*
Sauoma B. Boujaoude, American University Of Beirut
Sara Salloum, University of Balamand

**Strand 11: Cultural, Social, and Gender Issues**

**SC-organized paper set-Approaches to Equitable Science Teaching in K-12 Classrooms**
March 30, 2022, 1:30 PM-3:00 PM, Stanley

*Connecting Justice-Centered pedagogy to Students' Critical Science Agency in an Elementary and Middle School Science Classroom (Virtual)*
Selene Y. Willis, University Of South Florida
Dana L. Zeidler, University Of South Florida
Changed to in-person presentation format

Strand 12: Technology for Teaching, Learning, and Research
*SC-organized paper set-Digital Multimedia and Computational Thinking to Support Science Learning and Teaching*
March 29, 2022, 9:00 AM-10:30 AM, Burrard
Sensemaking Through Computational Thinking: Images of Computing as a Scientific Epistemic Practice in Teacher Learning
Gozde Tosun, Penn State University
Amy V. Farris, Penn State

Strand 11: Cultural, Social, and Gender Issues
*Related Paper Set-Multi-faceted and Emerging Approaches towards Transforming STEM Teaching, Learning and Research*
March 30, 2022, 10:30 AM-12:00 PM, Granville I
Uniting technical approaches and diverse communities: Bringing social justice at the forefront of engineering’s design considerations
Sebastian Schäfer, Technical University of Munich
Greses Pérez, Tufts University
Swetha Nittala, Stanford University
Sherri D Sheppard, Stanford University

**Substitute Presenter**

Strand 5: College Science Teaching and Learning (Grades 13-20)
*SC-organized paper set-Collaboration to Promote Learning*
March 28, 2022, 8:00 AM-9:30 AM, Parq Salon B
Analyzing an Interdisciplinary Education and Science/Engineering Team’s Interactions Using Activity Theory (Virtual)
*substitute presenter
Katherine McCance, North Carolina State University
*Stephanie Teeter, NC State University
Margaret R. Blanchard, NC State University
Richard Venditti, NC State University

Strand 8: In-service Science Teacher Education
*SC-organized paper set-Tools and Techniques to Understand and Support Teacher Learning*
March 28, 2022, 11:00 AM-12:30 PM, Stanley
It’s the work that it does, not the object itself: Scientific posters as boundary objects
*substitute presenter
Shannon G. Davidson, Florida State University
*Sherry A. Southerland, Florida State University
Lama Jaber, Florida State University

Strand 4: Science Teaching — Middle and High School (Grades 5-12): Characteristics and Strategies
March 29, 2022, 10:45 AM - 11:45 AM, Poster Space
The Challenges of Teaching in Charter Schools and How They were Overcome During the
COViD-19 Pandemic (Virtual)
Pamela Huff, Doctoral Candidate
Gail Jones, North Carolina State University

Strand 5: College Science Teaching and Learning (Grades 13-20) Poster-Strand 5 Poster Session
March 29, 2022, 10:45 AM - 11:45 AM, Poster Space
Poster 507
Student Participation and Self-Efficacy in Communities of Practice in Remote Undergraduate Physics Laboratories
*substitute presenter
Drew Jason Rosen, University of Maine Stony Brook University
*Angela M. Kelly, Stony Brook University