

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were missing some information, were changed to a different format, have a substitution in presenting author, or were withdrawn.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 28 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.

Additional Presentations

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

Administrative Session: Research Committee

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

Strand 10: Curriculum and Assessment

March 29, 2022, 10:45 AM - 11:45 AM, Poster Space

Poster 1005

Improving Out-of-Sample Predictions via Regularizing Priors in Bayesian Regression Models: Applications to Science Education Research

Shane Tutwiler, University of Rhode Island

Denise Bressler, East Carolina University

Withdrawn Presentations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 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

The agile educator: investigating science teachers' pedagogical capacity to design subject-specific up-to-date citizenship lessons (Virtual)

Ineke Henze-Rietveld, Delft University of Technology & Radboud University

Erik Barendsen, Radboud University & Open University

Dury Bayram Jacobs, Eindhoven University of Technology

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"

Ilesha 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: Kludja 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 Ibourk, 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

Yuxi Huang, University of Georgia

Hong H Tran, University of Georgia

Julie A Luft, University of Georgia

Brooke A Whitworth, Clemson University

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 Zochling,

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*