



2008 NARST

Annual International Conference

Impact of Science Education Research on Public Policy

March 30-April 2

Baltimore Marriott Waterfront Hotel

Baltimore, MD

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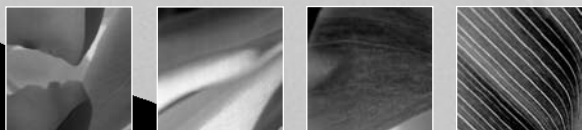
Studies in SCIENCE EDUCATION

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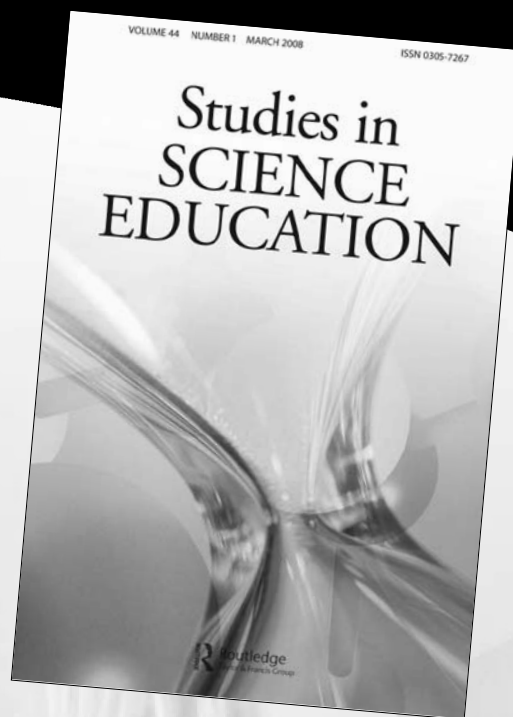
Volume 44, 2 issues per year
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- publishing articles from as wide a range of authors as possible, in relation both to professional background and country of origin.
- publishing articles which serve both to consolidate and reflect upon existing fields of study and to promote new areas for research activity.



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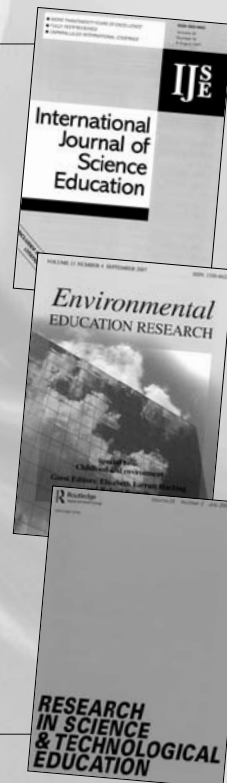
Volume 30, 2008, 15 issues per year
Print ISSN: 0950-0693, Online ISSN: 1464-5289
www.informaworld.com/ijse

Environmental Education Research

Editor: Alan Reid, University of Bath, UK
Volume 14, 2008, 5 issues per year
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Editor: Chris Botton, University of Hull, UK
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Acknowledgments

The following members of the Program Committee helped in preparing and editing the 2008 NARST Annual International Conference Program Book.

Penny J. Gilmer, President and Program Committee Chair

Charlene M. Czerniak, President-elect and Program Committee Co-Chair

Jonathan Osborne, Past President

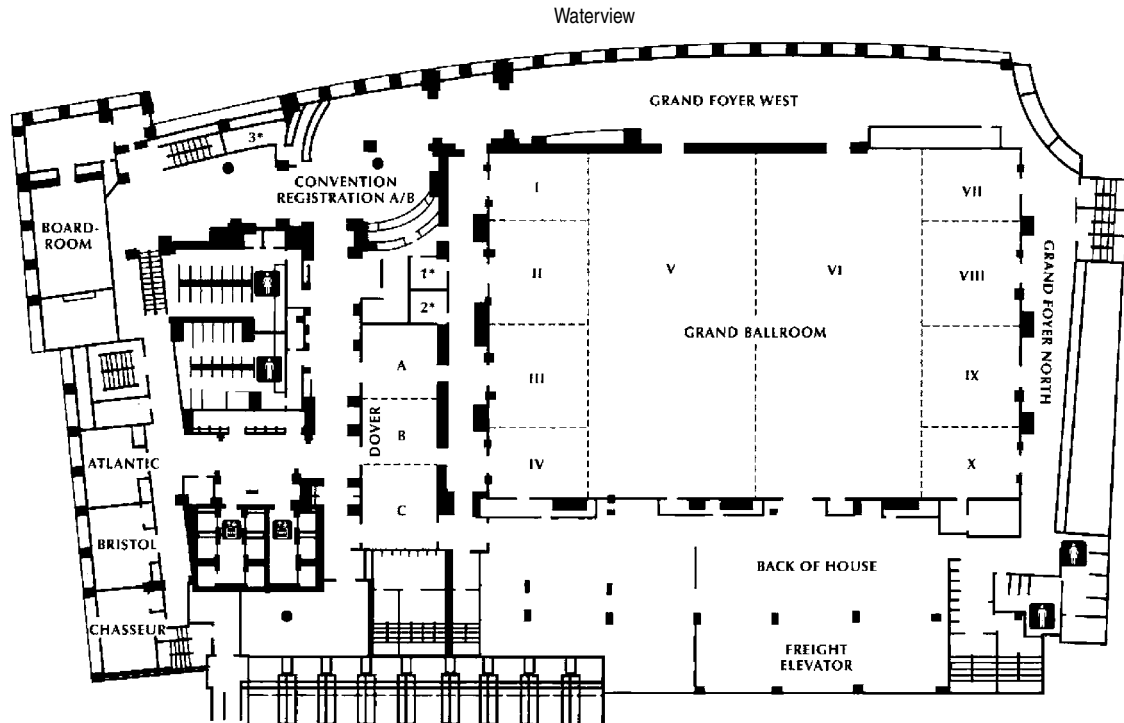
William C. Kyle, Jr., Executive Director



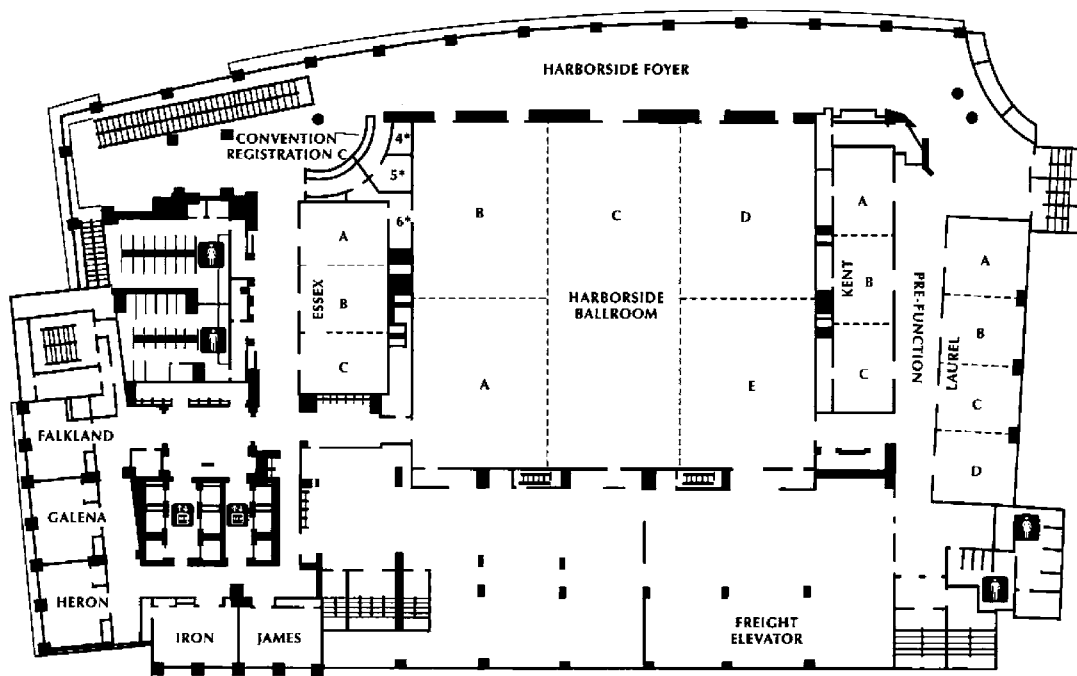
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Marriott Floor Plan



3rd Floor
Grand Ballroom



4th Floor
Harborside Ballroom

Guidelines for Presenters

General Responsibilities of Presenters at the Meeting

- Go to the designated room early.
- Greet the presider/discussant.
- If you plan to use a computer file in your presentation, put your file on a USB flash drive in advance, in case you will be using another presenter's computer for your presentation.
- Check your understanding of the LCD projector and any other audiovisual equipment prior to the session.
- Stay within the designated time limit.
- Invite audience questions.

Session Formats

Related Paper Sets and Paper Sets Grouped by Strand Coordinators

In a paper session, the presider/discussant introduces the speakers, who then present an abbreviated version of their papers. Generally, each paper will be allotted 15 minutes for presentation, followed by 5 minutes of questions, critique, and/or discussion. The discussant and audience will use the remaining time for additional discussion, general review, and suggestions for further research. If the paper is not on the NARST Proceedings 2008 CD distributed at the conference, then a copy of each paper must be disseminated during or immediately following the session.

Symposia

A symposium usually involves a panel of experts or stakeholders who examine a specific theme or issue. The proposer controls presentations, discussion, and questioning with the assistance of the presider/discussant. A presider helps with arranging the technology, helping keep the program on time, and introducing the presenters, if needed. In some cases, a discussant makes brief and cogent remarks on each paper with suggestions for future research. Discussion should promote the expression of alternative viewpoints and theoretical positions.

Interactive Poster Sessions

Six to 15 posters will be assigned to one room. Presenters at the interactive poster sessions will be assigned a presentation area within a large room. The session will be chaired by a presider who will give each interactive poster session presenter or team of presenters two minutes to introduce themselves and give a brief description of their paper, after which participants will browse among the posters. At the end of the poster session, a presider will provide a summary of the set of posters grouped in the session. The interactive poster sessions will run for 90 minutes.

Guidelines for Presiders and Discussants

We have accommodated most sessions with a presider, whose role is detailed below. For sessions without discussants, we are counting on the presider and presenters to set aside time for discussion so that the audience participants can contribute to a lively discussion of the papers.

Presider Roles

- Arrive early at designated room and arrange furniture as per desires of presenters.
- Check and focus LCD projector.
- Check pronunciations of the names of the presenter and their institutions.
- With presenters, make a time plan, retaining the order of presenters in the program.
- Start session promptly.
- Introduce presenters and serve as timekeeper. Alert presenters when they have 5, 3, and 1 minute remaining.
- Facilitate discussion, assuring equitable involvement of audience members. Close session on time.

Discussant Roles

- Read papers before the session and have remarks prepared ahead of time.
- Perform presider duties as detailed above, if there is only a discussant for the session.
- After the presentation, make brief and cogent remarks on each paper with suggestions for future research.

Notes on Session Types

Related Paper Sets and Paper Sets Grouped by Strand Coordinators

- Presider and presenters will negotiate the organization of the session before it starts.
- Time should be left at the end for discussant comments and/or audience participation.

Symposia

Presentations, discussion, and questions are controlled by the presenters, with the assistance of the presider or discussant, if needed.

Interactive Poster Sessions

Six to 15 papers are assigned to one room. If there is a presider, s/he introduces and closes the session. Each first author presents a brief (less than 2 minutes) overview of the research. After the overviews, audience members circulate throughout the room to view posters and interact with presenters. The presider should allow time at the end of the session for large group discussion.



General Information

Information About NARST

The National Association for Research in Science Teaching was founded in 1928 for the purpose of promoting research in science education at all educational levels and disseminating the findings of this research in such ways as to improve science teaching. The Association is incorporated as a non-profit corporation in the State of Minnesota. The official publication is the *Journal of Research in Science Teaching*.

NARST encourages the conduct and presentation of the results of a wide variety of investigations in all aspects of science education, including action, historical, philosophical, ethnographic, experimental, and evaluative studies. Reports of empirical research, critical reviews, and theoretical works are encouraged. Some research areas of interest to NARST members include curriculum development and organization, assessment and evaluation, learning theory, teacher education, programs for exceptional students (special needs and talents), equity studies, and methods of teaching.

NARST Mission Statement

The National Association for Research in Science Teaching (NARST) is a worldwide organization of professionals committed to the improvement of science teaching and learning through research. Since its inception in 1928, NARST has promoted research in science education and the communication of knowledge generated by the research. The ultimate goal of NARST is to help all learners achieve science literacy. NARST promotes this goal by: 1) encouraging and supporting the application of diverse research methods and theoretical perspectives from multiple disciplines to the investigation of teaching and learning in science; 2) communicating science education research findings to researchers, practitioners, and policy makers; and 3) cooperating with other educational and scientific societies to influence educational policies.

How NARST Keeps Its Members Informed

- Ten issues of the *Journal of Research in Science Teaching (JRST)*. The Journal has been ranked as one of the highest quality educational journals according to studies published by War, Holland and Schramm (American Educational Research Journal) and Guba and Clark (Educational Researcher) for the American Educational Research Association (AERA). These authors identified JRST as clearly the top research journal in science education.
- NARST Annual International Conference Proceedings. A proceedings volume is distributed at the annual international conference. This volume includes a compiled list of abstracts (on CD-ROM) for each annual international conference plus copies of accepted papers submitted prior to the conference. Members attending the conference receive a copy on-site and the cost is included in their registration fee.
- *E-NARST News* describing recent developments in research and in the profession. E-NARST provides opportunities to work with prominent people throughout the world on research projects and with affiliated organizations such as the National Science Teachers Association (NSTA), the Association for Science Teacher Education (ASTE), and the American Association for the Advancement of Science (AAAS). Our newsletter is now published online twice a year and posted to the NARST website.
- Website and Listserv, allowing access to further information about the organization. You may access this site at the following URL <http://www.narst.org>. There is further information about the Listserv on this site.

Explanation of Program Session Formats

Paper Sessions Organized by the Program Committee

In a paper session, the presider introduces the presenters and monitors the time used for each presentation. All papers will be allotted 15 minutes for presentation, followed by approximately 5 minutes of questions or discussion. The presider and audience will use any time remaining in the session for additional discussion, general review, and suggestions for further research. The overall length of the paper sessions may vary based on the number of papers assigned to that session, but each paper within a particular session will observe the 15-minute presentation guideline. For example, four papers grouped together will be given a 90-minute time period, while two papers grouped together will be given a 45-minute time period for the overall session. This will optimize the grouping of papers by allowing strand coordinators to group papers based on similarity rather than forcing the grouping of papers to fit a standard time block. Each presenter is expected to disseminate a paper during or immediately following the session, unless the paper is on the NARST Proceedings 2008 CD, distributed as part of the program.

Symposium

A symposium involves a panel of experts or stakeholders who examines a specific theme or issue. This format does not involve the presentation of individual papers. Therefore, individual papers and authors will not be listed under this format. Rather, the participants are listed as panel members. The proposer controls presentations, discussion, and questioning with the assistance of the presider or discussant (if designated). Discussion should promote the expression of similar or alternative viewpoints and theoretical positions. The proposer of the symposium is expected to disseminate a paper or a summary with references during or immediately following the session, unless a summary of the symposium is on the NARST Proceedings 2008 CD.

Related Paper Set

This category accommodates, in a single session, three to five related research papers reporting several studies that originate from a common base of research. This format also allows for common elements of design or approach to be presented once rather than repetitively. The proposer and authors may determine the specifics of the session once it is accepted. For instance, those involved may opt for a formal presentation style or they may conduct their session in a more informal, discussion-oriented style. Each presenter is expected to disseminate a paper during or immediately following the session, unless a summary of the related paper set is on the NARST Proceedings 2008 CD.

Interactive Poster Sessions Grouped by Strand Coordinators

This format offers presenters the opportunity to display their work graphically in a smaller setting than the traditional poster session format. Displays should fit on the 48" (long) x 36" (high) trifold boards provided and should include a brief abstract in large typescript. Six to 15 posters grouped by strand will be displayed in one room. Each presenter will have 2 minutes to present a brief overview of his or her research. At the conclusion of the brief presentations, audience members will have approximately 30 minutes to circulate throughout the room to view the posters and interact with the presenters. At the conclusion of this time, a large group discussion will be facilitated by the session presider. Each presenter must set up the display prior to the start of the session and then remove it promptly at the end of the session. Each presenter is expected to disseminate a paper during the session, unless a summary of the poster is on the NARST Proceedings 2008 CD.

Strand Key

- STRAND 1 - Science Learning: Understanding and Conceptual Change
- STRAND 2 - Science Learning: Contexts, Characteristics, and Interactions
- STRAND 3 - Science Teaching—Primary School (Grades preK-6): Characteristics and Strategies
- STRAND 4 - Science Teaching—Middle and High School (Grades 5-12): Characteristics and Strategies
- STRAND 5 - College Science Teaching and Learning (Grades 13-20)
- STRAND 6 - Science Learning in Informal Contexts
- STRAND 7 - Pre-service Science Teacher Education
- STRAND 8 - In-service Science Teacher Education
- STRAND 9 - Reflective Practice
- STRAND 10 - Curriculum, Evaluation, and Assessment
- STRAND 11 - Cultural, Social, and Gender Issues
- STRAND 12 - Educational Technology
- STRAND 13 - History, Philosophy, and Sociology of Science
- STRAND 14 - Environmental Education

A Special Thanks to our Sponsors and Exhibitors

Open University Press
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We acknowledge John Wiley & Sons and their work as publisher of the
Journal of Research in Science Teaching - JRST

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“NARST: a lived history”

This forthcoming article in *Cultural Studies of Science Education* is now available in Online First.

Volume 3:2 - Abstract

In this Forum, we construct a history of the National Association for Research in Science Education (NARST) through the analysis of documents and through the personal perspectives of individuals. The history of NARST is inseparable from the biography of the individuals through whose lives it was produced and reproduced. The history of NARST is a living history that both shapes and was shaped by the biographies of its members.

**Visit the Springer booth and
take advantage of the 20% book discount!**



New Editor-in-Chief for Research in Science Education

We are pleased to announce that **Dr. Stephen M. Ritchie**, Queensland University of Technology, Brisbane, Australia, has started as the new Editor-in-Chief of Research in Science Education as of January 1, 2008.

A thank you to Professor Cam McRobbie

We would like to take this opportunity to express our profound gratitude to Prof. Cam McRobbie, Editor-in-Chief for the journal in 1978 (together with Colin Power) and from 1995 to 2007.

**Listed in Social Sciences
Citation Index**

We are very thankful for the work he has performed in making the journal into an internationally recognized publication.

2009 NARST Annual International Conference

Garden Grove - (Adjacent to Anaheim, CA, USA)

The Program Chair invites NARST members and others to plan to participate in the 2009 NARST Annual International Conference and especially urges all members to start planning program proposals now during this year's conference.

VENUE: Hyatt Regency Orange County, 11999 Harbour Blvd., Garden Grove, CA, USA.

DATES: Thursday, April 17 – Wednesday, April 21, 2009

SUBMISSION DEADLINE: The Program Chair or designate must receive your program proposals for the Annual International Conference in 2009 by August 15, 2008 to be reviewed. The deadline allows sufficient time for processing and evaluating the many proposals. The original call for proposals will appear on the NARST website in June 2008.

BACKGROUND INFORMATION: Welcome to the City of Garden Grove. Garden Grove is a vibrantly progressive and growing city located just south of Los Angeles in Orange County, California. City motto, "The City of Youth and Ambition," accurately reflects this culturally diverse community of over 170,000 people. Garden Grove is home to four annual cultural festivals that celebrate the Vietnamese, Korean, Arabic, and American heritage. Garden Grove's Strawberry Festival, nearing 50 years old, is the largest community-based Memorial Day event in the western United States.

Garden Grove is conveniently located less than one mile from Disneyland, seven miles from Knott's Berry Farm, nine miles from local beaches, and 10 miles from John Wayne Airport.

Future Meeting Dates for NARST, NSTA, and AERA

2009	NSTA	Indianapolis	April 2 – 5
	AERA	San Diego	April 13 – 17
	NARST	Garden Grove	April 17 – 21
		Hyatt Regency Orange County	
2010	NSTA	Philadelphia	March 17 – 20
	AERA	Denver	April 30 – May 4
	NARST	Philadelphia	March 21 – 24
2011	NSTA	San Francisco	April 7 – 10
	AERA	New Orleans	April 8 – 12
	NARST	Orlando	TBD
2012	NSTA	TBD	
	AERA	Vancouver	April 13 – 17
	NARST	Seattle/Vancouver	TBD

2007 Strand Coordinators

- STRAND 1 Science Learning, Understanding, and Conceptual Change**
Eva Toth, Catherine Milne
- STRAND 2 Science Learning: Contexts, Characteristics, and Interactions**
Tracy Hogan, Wesley Pitts
- STRAND 3 Science Teaching –Primary School (Grades preK-6)**
Mark Guy, Jan H. van Driel
- STRAND 4 Science Teaching –Secondary School (Grades 5-12)**
Jo Anne Ollerenshaw, Lisa Martin-Hansen
- STRAND 5 College Science Teaching (Grades 13-20)**
Peter Garik, Kate Popejoy
- STRAND 6 Science Learning in Informal Contexts**
Shawn Rowe, Tali Tal
- STRAND 7 Pre-service Science Teacher Education**
Rola Khishfe, Christina Schwarz
- STRAND 8 In-Service Science Teacher Education**
Patricia Morrell, Martina Nieswandt
- STRAND 9 Reflective Practice**
Tamara Nelson, Jerine Pegg
- STRAND 10 Curriculum, Evaluation, and Assessment**
Kimberly Tanner, Bruce Waldrup
- STRAND 11 Cultural, Social, and Gender Issues**
Felicia Moore, Magnia A. George
- STRAND 12 Educational Technology**
Barbara Hug, Hsin-Kai Wu
- STRAND 13 History, Philosophy, and Sociology of Science**
Mike Smith, Larry Scharmann, Agust'n Adúriz-Bravo
- STRAND 14 Environmental Education**
Julia Lambert, Rita Anne Hagevik, Eleanor Abrams

Program Proposal Reviewers

Abd-El-Khalick, Fouad	Blanchard, Meg	Choi, Aeran	Duschl, Richard
Abdo, Shehadeh	Bledsoe, Karen	Choi, Sung-Youn	Eastwood, Jennifer Lynne
Abi-El-Mona, Issam	Blickenstaff, Jacob	Christensen, Alicia	Ebenezer, Jazlin
Abraham-Silver, Linda	Blickenstaff, Jason	Chu, Hye-Eun	Eibensteiner, Janice
Abrams, Eleanor	Blonder, Ron	Clary, Renee	Eichinger, David
Adadan, Emine	Bobrowsky, William	Cleveland, Tanya	Elliott, Marcella
Adams, April	Bodner, George	Coffey, Janet	Elster, Doris
Adams, Jennifer	Boone, Bill	Colley, Kabba	Emig, Brandon
Ajeyalemi, Duro	Bora, Nihal Dogan	Cone, Neporcha	Enderle, Patrick
Akarsu, Bayram	Bottoms, SuAnn	Conner, Lindsey	Enfield, Mark
Akerson, Valarie	Boujaoude, Saouma	Cook, Michelle	Enger, Sandra
Aktan, Mustafa B.	Bowen, G. Michael	Cooper, James	Enochs, Larry
Allen, Gerrard	Boxerman, Jonathan	Copeland, Liesel	Epps, Virginia
Allspaw, Kathleen	Boyer, Lis	Courson, Sue	Erduran, Sibel
Amiri, Leila	Brandt, Carol	Covitt, Beth	Espinoza, Fernando
Amirshokoohi, Aidin	Bricker, Leah A.	Cowie, Bronwen	Evagorou, Maria
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Anderson, Janice	Brunvand, Stein	Crawley, Frank	Fetters, Marcia
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Asghar, Anila	Buckley, Barbara C.	Dagher, Zoubeida	Figueroa, Fernando
Ashmann, Scott	Bulte, A.M.W.	Dana, Tom	Fisher, Kathleen M.
Atar, Hakan	Butler, Malcolm	Dani, Danielle	Fleming, Michelle
Atken, Mustafa	Butler, Wilbert	Darmulo, Yasin Dilsebo	Fletcher, Steve
Atwater, Mary	Byoung-Sug, Kim	Davis, Betsy	Flick, Larry
Atwood, Ron	Cabot, Nick	Davis, Elizabeth A.	Fluet, Kimberley
Augustin, Line A.	Cahill, Clara	Davis, Kathleen	Flynn, Leslie
Austin, Barbara	Cain, Stephen	Davis, Nancy	Fogleman, Jay
Ayala, Carlos	Cakir, Mustafa	DeCoito, Isha	Foley, Brian
Aydeniz, Meymet	Callahan, Brendan	Delgado, Cesar	Foley, Kathleen R.
Baldwin, Brian	Cantrell, Pamela	Demir, Kadir A.	Forawi, Sufian
Balgopal, Meena	Capobianco, Brenda	den Brok, Perry	Forbes, Cory
Balinsky, Martin	Carlone, Heidi	Deneroff, Victoria	Ford, Danielle J.
Banerjee, Anil	Carrier, Sarah	Deniz, Hasan	Ford, Michael
Bantwini, Bongani	Carroll, James	Dershimer, Charles	Forrester, Jennifer
Barak, Miri	Carter, Lyn	Desouza, Shireen	Fortney, Brian
Bardapurkar, Abhijeet	Cartier, Jennifer	DeWitt, Jennifer	Fowler, Samantha
Barker, Danielle	Carver, Jeffrey	Diana, Thomas J.	Fraser, Barry
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Bell, Philip	Chen, Hui-Jung	Domin, Daniel	Gay, Andrea
Bencze, John Lawrence	Chen, I-shin	Donaldson, Nancy	Geer, Uric
Berg, Cheryl	Cheng, May	Donna, Joel	Gehrke, Coral
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Black, Alice A. (Jill)	Chinn, Pauline	Doyle, Connie	Gilmer, Penny
Black, Kathie	Chiu, Mei-Hung	Dreon Jr., Oliver	Giombetti, Cassandra
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Golden, Barry	Jackson, Debbie K.	Lastica, Joelle R.	Merritt, Brett
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Gotwals, Amelia	Jarrett , Olga	Lederman, Norman	Meyer, Daniel
Grady, R. Julie	Jayme, Bruno	Lee, Cherin	Meyer, Helen
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Greenspan, Yvette	Jen, Andrew	Lee, Eunmi	Miller, Chris
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Grueber, David	Johnson, Angela	Levitt, Karen	Monhardt, Rebecca
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Gupta, Ayush	Johnson, Verneda	Liu, Chin-Tang	Morrell, Tisha
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Halai, Nelofer	Kahveci, Murat	Ludvico, Lisa	Murfin, Brian
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Harrington, Maria C.R.	Keen-Rocha, Linda	Malone, Kathy	Newman, William
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Harris, Diane Patricia	Kelley, Sybil	Manner, Barbara	Niaz, Mansoor
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Heitzman, Mary	Ketelhut, Diane Jass	Martin, Lisa	Norby, Rena Faye
Hermann, Ronald	Khalid, Tahsin	Martin, Sonya	Norman, Obed
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Hewson, P W	Kijkuakul, Sirinapa	Maskiewisch, April	Nugent, Jeffrey S.
Himangshu, Sumitra	Kim, Byoung-Sug	Matthews, Michael	Obaya, Adolfo
Hitt, Austin	King, Melissa	Maurer, Matthew	Ochanji, Moses
Hogan, Tracy	Kisiel, James	Mawyer, Kirsten	Ochsendorf, Rob
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Huang, Chao-Ming	Koehle, Catherine M.	McConnell, Tom J.	Ollerenshaw, Jo Anne
Huang, Chun-Chieh	Korpan, Connie	McDonald, Christine	Olson, Eric
Huang, Hui-Ju	Kozoll, Richard	McDonald, Jim	Olson, Mark
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Hutchinson, Charles	Kyza, Eleni A.	McNeill, Katherine	Oyoo, Samuel Ouma
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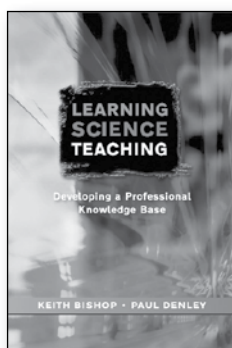
New and Popular Books New and Popular Books New and Popular Books

Learning Science Teaching: Developing A Professional Knowledge Base

Paul Denley, University of Bath, UK

Keith Bishop, University of Bath, UK

This book argues that highly accomplished science teachers are also continually learning science teachers. It stresses the importance of learning through others, by participation in communities of science practitioners, as well as individual learning through classroom research.



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Science for Primary School Teachers

Helena Gillespie, University of East Anglia, UK

Rob Gillespie, Wymondham High School,

Norfolk, UK

This book is intended to be a core text for primary school teachers in training, induction and beyond. It is primarily aimed at those who are not science specialists, providing them with an accessible and useful tool to enable them to gain confidence in their ability to teach science successfully.



2007 / 216 pp / 0335220150 / Paperback \$45.95

Developing Scientific Literacy: Using News Media in the Classroom

Ruth Jarman, Queen's University Belfast, UK

Billy McClune, Queen's University Belfast, UK

This is a timely book which will be particularly useful for students and practicing teachers of science and English / media studies in secondary schools and colleges and for those with responsibilities in initial teacher training and continuing professional development.

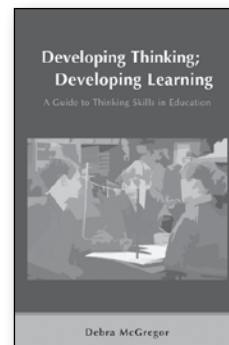


2007 / 232 pp / 0335217958 / Paperback \$45.95

Developing Thinking; Developing Learning

Debra McGregor, Educational Consultant, USA

This is an indispensable guide to thinking skills in schools today, and is key reading for education studies students, teachers and trainee teachers, and educational psychologists.

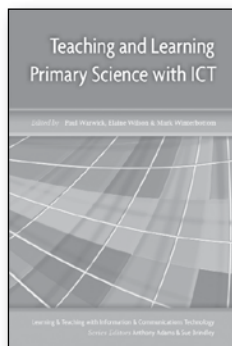


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Teaching and Learning Primary Science with ICT

Paul Warwick et al, University of Cambridge, UK

This book provides a range of insights into pupils' learning relevant to the use of information and communications technology (ICT) in primary science. The contributors, who are all experts in their field, draw on practical and theoretical perspectives. It is essential reading for students in science education, and for teachers who want to use new technology to improve learning in their science classrooms.

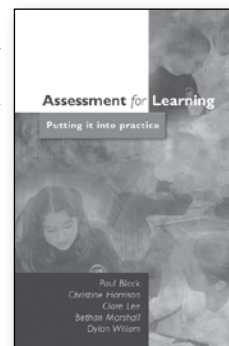


2006 / 216 pp / 0335218946 / Paperback \$45.95

Assessment for Learning

Paul Black et al, King's College London, UK

"This is a surprising and welcome book... a heartening read that shows the power of assessment for learning and the potential for academics and teachers jointly to put into practice ideas that can improve classroom learning and teaching." TES



2003 / 172 pp / 0335212972 / Paperback \$43.95

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NARST Award Winners

Distinguished Contributions to Science Education Through Research

This award is presented at the Annual International Conference but is bestowed only when a superior candidate is identified. It is given to recognize an individual who, through research over an extended period of time, has made outstanding and continuing contributions, provided notable leadership, and made a substantial impact in the area of science education.

Year	Awardee	Year	Awardee	Year	Awardee
1986	Anton E. Lawson	1997	Rosalind Driver	2007	Kenneth Tobin
1987	Paul DeHart Hurd	1998	James J. Gallagher		
1988	John W. Renner	1999	Peter J. Fensham		
1989	Willard Jacobson	2000	Jane Butler Kahle		
1990	Joseph D. Novak	2001	John K. Gilbert		
1991	Robert L. Shrigley	2002	Audrey B. Champagne		
1992	Pinchas Tamir	2003	Barry J. Fraser		
1993	Jack Easley, Jr.	2004	Robert E. Yager		
1994	Marcia C. Linn		Paul Black		
1995	Wayne W. Welch	2005	John C. Clement		
1996	Carl F. Berger	2006	David Treagust		

JRST Award

The JRST Award is given annually to the article published in the *Journal of Research in Science Teaching* that is judged to be the most significant for that year.

Year	Awardee	Year	Awardee	Year	Awardee
1974	Donald E. Riechard and Robert C. Olson	1991	E. P. Hart and I. M. Robottom	2007	Jerome Pine Pamela Aschbacher Ellen Roth Melanie Jones Cameron McPhee Catherine Martin Scott Phelps Tara Kyle and Brian Foley
1975	Mary Budd Rowe	1992	John R. Baird, Peter J. Fensham, Richard E. Gunstone, and Richard T. White		
1976	Marcia C. Linn and Herbert C. Thier				
1977	Anton E. Lawson and Warren T. Wollman	1993	Nancy R. Romance and Michael R. Vitale		
1978	Dorothy L. Gabel and J. Dudley Herron	1994	E. David Wong		
1979	Janice K. Johnson and Ann C. Howe	1995	Stephen P. Norris and Linda M. Phillips		
1980	John R. Staver and Dorothy L. Gabel	1996	David F. Jackson, Elizabeth C. Doster, Lee Meadows, and Teresa Wood		
(tie)	Linda R. DeTure				
1981	William C. Kyle, Jr.	1997	C.W.J.M. Klassen and P.L. Linjse		
1982	Robert G. Good and Harold J. Fletcher				
(tie)	F. David Boulanger	1998	Julie Bianchini		
1983	Jack A. Easley, Jr.	1999	Phillip M. Sadler		
1984	Marcia C. Linn, Cathy Clement and Stephen Pulos	2000	Allan G. Harrison, Diane J. Grayson, and David F. Treagust		
1985	Julie P. Sanford	2001	Fouad Abd-El-Khalick		
1986	Anton E. Lawson		Norman G. Lederman		
1987	Russell H. Yeany, Kueh Chin Yap, and Michael J. Padilla	2002	Andrew Gibert and Randy Yerrick		
1988	Kenneth G. Tobin and James J. Gallagher	2003	Sofia Kesidou and Jo Ellen Roseman		
1988 (tie)	Robert D. Sherwood, Charles K. Kinzer, John D. Bransford and Jeffrey J. Franks	2004	Jonathan Osborne, Sue Collins, Mary Ratcliffe, Robin Millar and Rick Duschl		
	Anton E. Lawson				
1989	Glen S. Aikenhead	2005	Jonathan Osborne		
1990	Richard A. Duschl and Emmett L. Wright		Sibel Erduran		
		2006	Shirley Simon		
			Troy D. Sadler		
			Dana L. Zeidler		

Outstanding Paper Award

The Outstanding Paper Award is given annually for the paper or research report presented at the Annual International Conference that is judged to have the greatest significance and potential in the field of science education.

Year	Awardee	Year	Awardee	Year	Awardee
1975	John J. Koran	1991	Nancy R. Romance and Michael Vitale	2007	Eugene L. Chiappetta
1976	Anton E. Lawson				Tirupalavanam G. Ganesh
1977	no award	1992	Patricia Heller Ronald Keith and Scott Anderson		Young H. Lee and Marianne C. Phillips
1978	Rita Peterson				
1979	Linda R. DeTure	1993	Wolff-Michael Roth		
1980	M. James Kozlow and Arthur L. White	1994	Wolff-Michael Roth and Michael Bowen		
1981	William Capie, Kenneth G. Tobin, and Margaret Boswell	1995	Wolff-Michael Roth		
1982	F. Gerald Dillashaw and James R. Okey	1996	Nancy J. Allen		
1983	William C. Kyle, Jr., James A. Shymansky, and Jennifer Alport	1997	no award		
1984	Darrell L. Fisher and Barry J. Fraser	1998	Wolff-Michael Roth, Reinders Duit, Michael Komorek, and Jens Wilbers		
1985	Hanna J. Arzi, Ruth Ben-Zvi, and Uri Ganiel	1999	Lynn A. Bryan		
(tie)	Russell H. Yeany, Kueh Chin Yap, and Michael J. Padilla	2000	Joseph L. Hoffman and Joseph S. Krajcik		
1986	Barry J. Fraser, Herbert J. Walberg, and Wayne W. Welch (tie)	2001	Allan G. Harrison		
1987	Robert D. Sherwood	2002	Carolyn Wallace Keys Eun-Mi Yang Brian Hand and Liesl Hohenshell		
1988	Barry J. Fraser and Kenneth G. Tobin	2003	Wolff-Michael Roth		
1989	James J. Gallagher and Armando Contreras	2004	Joanne K. Olson Sharon J. Lynch, Joel Kuipers, Curtis Pyke and Michael Szesze		
1990	Patricia L. Hauslein, Ronald G. Good, and Catherine Cummins	2005	Chi Yan Sui, David Treagust and Michael Szesze		
		2006	Leema Kuhn and Brian Reiser		

Outstanding Doctoral Dissertation Award

This award was established in 1992 to be given annually for the Doctoral Dissertation judged to have the greatest significance in the field of science education.

Year	Awardee	Major Professor
1992	René Stofflett	Dale R. Baker
1993	Julie Gess-Newsome	Norman G. Lederman
1994	Carolyn W. Keys	Burton E. Voss
1995	Jerome M. Shaw	Edward Haertel
1996	Christine M. Cunningham	William L. Carlsen
1997	Jane O. Larson	Ronald D. Anderson
1998	Kathleen Hogan	Bonnie K. Nastasi
1999	Fouad Abd-El-Khalick	Norman G. Lederman
2000	Danielle Joan Ford	Annemarie S. Palinscar
2001	Iris Tabak	Brian Reiser
2002	Mark Girod	David Wong
2003	Hsin-Kai Wu	Joseph Krajcik
2004	David L. Fortus	Ronald Marx and Joseph Krajcik
2005	Thomas Tretter	Gail M. Jones
2006	Stacy Olitsky	Kenneth Tobin
2007	Julia Plummer	Joseph S. Krajcik

Outstanding Master's Thesis Award

This award was established in 1995 to be given annually for the Master's Thesis judged to have the greatest significance in the field of science education. It was last awarded in 2002.

Year	Awardee	Major Professor
1995	Moreen K. Travis	Carol L. Stuessy
1996	Lawrence T. Escalada	Dean A. Zollman
1997	C. Theresa Forsythe	Jeffrey W. Bloom
1998	Reneé D. Boyce	Glenn Clark
1999	Andrew B. T. Gilbert	Randy K. Yerrick
2000	Rola Fouad Khishfe	Fouad Abd-El-Khalick
2002	Laura Elizabeth Slocum	Marcy Hamby Towns

Early Career Research Award

The Early Career Research Award is given annually to the early researcher who demonstrates the greatest potential to make outstanding and continuing contributions to educational research. The recipient will have received his/her Doctoral degree within five years of receiving the award.

Year	Awardee	Year	Awardee
1993	Wolff-Michael Roth	2000	Angela Calabrese Barton
1994	Deborah J. Tippins	2001	Julie A. Bianchini
1995	Nancy B. Songer	2002	Alan G. Harrison
1996	Mary B. Nakhleh	2003	Fouad Abd-El-Khalick
1997	Peter C. Taylor	2004	Grady J. Venville
1998	J. Randy McGinnis	2005	Randy L. Bell
1999	Craig W. Bowen	2006	Heidi Carlone
	Gregory J. Kelly	2007	Bryan A. Brown

Classroom Applications Award

The Classroom Applications Award was established in 1979. The award was given annually to authors whose papers were presented at the previous Annual Meeting and judged to be outstanding in terms of emphasizing classroom application of research in science education. The award was last presented in 1991.

Year	Awardee(s)
1980 (Five Equal Awards)	Livingston S. Schneider and John W. Renner Heidi Kass and Allan Griffiths Ramona Saunders and Russell H. Yeany Joe Long, James R. Okey, and Russell H. Yeany M. James Kozlow and Arthur L. White
1981 (Four Equal Awards)	Dorothy L. Gabel, Robert D. Sherwood, and Larry G. Enochs Wayne Welch, Ronald D. Anderson, and Harold Pratt Mary Ellen Quinn and Carolyn Kessler P. Ann Miller and Russell H. Yeany
1982 (Four Equal Awards)	Louise L. Gann and Seymour Fowler Dorothy L. Gabel and Robert D. Sherwood Thomas L. Russell Joseph C. Cotham
1983	Robert D. Sherwood, Larry G. Enochs, and Dorothy L. Gabel
1984 (Four Equal Awards)	Mary Westerback, Clemencia Gonzales, and Louis H. Primavera Kenneth G. Tobin Hanna J. Arzi, Ruth Ben-Zvi, and Uri Ganiel Charles Porter and Russell H. Yeany
1985 (Three Equal Awards)	Dan L. McKenzie and Michael J. Padilla Margaret Walkosz and Russell H. Yeany Kevin C. Wise and James R. Okey
1986 (Four Equal Awards)	Sarath Chandran, David F. Treagust, and Kenneth G. Tobin Darrell L. Fisher and Barry J. Fraser Dorothy L. Gabel, Stanley L. Helgeson, Joseph D. Novak, John Butzow, and V. K. Samuel Linda Cronin, Meghan Tweist, and Michael J. Padilla
1987	Dorothy L. Gabel, V. K. Samuel, Stanley L. Helgeson, Sandra McGuire, Joseph D. Novak, and John Butzow
1988	Uri Zoller and Benn Chaim
1989	James D. Ellis and Paul J. Kuerbis
1990	Dale R. Baker, Michael D. Piburn, and Dale S. Niederhauser
1991	David F. Jackson, Billie Jean Edwards, and Carl F. Berger

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2007-2008

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E-NARST News Editor

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Schedule at a Glance

Saturday, March 29

9:00 AM – 5:00 PM NARST Executive Board Meeting #1

Sunday, March 30

8:00 – 12 noon NARST Executive Board Meeting #2
 8:00 – 11:30 AM Two of the three Pre-Conference Workshops
 8:00 – 2 PM One of the three Pre-conference Workshops
 10:00 – 10:15 AM Break
 Concurrent Sessions
 Session #1
 Break
 Session #2
 Session #3
 Mentor-Mentee Nexus
 7:00 – 9:00 PM Presidential/Welcome Reception

Monday, March 31

7:00 - 8:15 AM Committee Meetings
 8:30 – 9:45 AM Plenary #1: Marcia Linn
 9:45 – 10:15 AM Break
 10:15 – 6:15 PM Concurrent Sessions
 10:15 – 11:45 AM Session #4 –Poster time for all posters
 12:00 – 12:45 PM NARST Business Meeting (box lunches provided for attendees who have signed up)
 1:00 – 2:30 PM Session #5
 2:30 – 3:00 PM Break
 3:00 – 4:30 PM Session #6
 4:45 – 6:15 PM Session #7
 6:30 – 7:30 PM Graduate Student Forum
 6:30 – 8:30 PM JRST Editorial Board Meeting/Dinner (Meeting open/Dinner by invitation only)

Tuesday, April 1

7:00 – 8:15 AM Committee Meetings
 8:30 – 10:00 AM Concurrent Sessions
 8:30 – 10:00 AM Session #8
 10:00 – 10:30 AM Break
 10:30 – 11:45 AM Plenary #2: Peter Fensham
 12:00 – 1:45 PM Awards Luncheon
 2:00 – 5:30 PM Concurrent Sessions
 2:00 – 3:30 PM Session #9
 3:30 – 4:00 PM Break
 4:00 – 5:30 PM Session #10
 5:00 – 6:00 PM Research in Science Education (RISE) Editorial Board Meeting
 5:45 – 6:45 PM New Researcher and Junior Faculty Early Career Discussion
 7:00 – 9:00 PM Equity Dinner off site
 6:30 – 9:00 PM Routledge/Taylor and Francis Reception (by invitation only)
 8:00 – 10:00 PM Social – FARSE

Wednesday, April 2

7:00 – 8:15 AM Strand Meetings
 8:30 – 12:00 PM Concurrent Sessions
 8:30 – 10:00 AM Session #11
 10:00 – 10:30 AM Break
 10:30 – 12:00 PM Session #12
 12:30 – 4:00 PM NARST Executive Board Meeting #3





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The World of Science Education

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Understanding and Developing Science Teachers

Pedagogical Content Knowledge *John Loughran, Amanda Berry and Pamela Mulhall*

The Culture of Science Education: Its History in Person

Kenneth Tobin and Wolff-Michael Roth

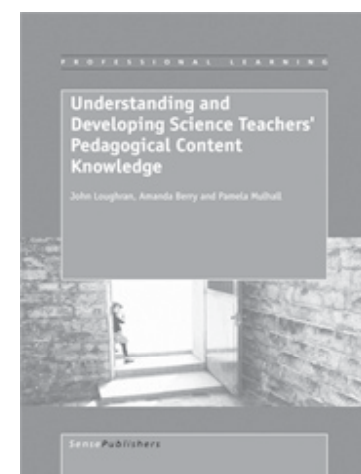
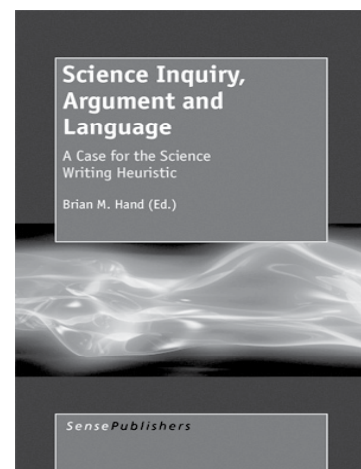
Teaching Scientific Inquiry: Recommendations for Research and Implementation *Richard A. Duschl and Richard E. Grandy (eds.)*

The Re-Emergence of Values in Science Education

Deborah Corrigan, Justin Dillon and Richard Gunstone (eds.)

Science Inquiry, Argument and Language: A case for the Science Writing Heuristic *Brian M. Hand (ed.)*

Science Education in Context: An International Examination Of The Influence Of Context On Science Curricula Development And Implementation *Richard A. Coll and Neil Taylor (eds.)*



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Sunday, March 30

NARST Board of Directors Meeting 2 8:00AM – 12:00PM

Room: Essex A & B

Note. Breakfast begins at 7:30am for Board Members.

Pre-Conference Workshops

8:00AM – 11:30AM

*Equity and Ethics Committee Sponsored Pre-Conference Workshop:
Building a Community of Scholars in NARST: Gaining Strength
through Diversity—Equity and Ethics Committee Sponsored*

Room: Dover B

Presider: Maria Rivera Maulucci

Presenters:

Felicia Moore

Alejandro Gallard

Facilitators:

Bryan Brown

Bhaskar Upadhyay

Shawn Holmes

Sanghee Choi

Line Augustin

Hsiao-Lin Tuan

Jing-Wen Lin

Alberto Rodriguez

8:00AM – 11:30PM

*Research Committee Sponsored Pre-Conference Workshop:
Research Agenda in Science Education: An Examination of
Three Domains of Inquiry—Research Committee Sponsored*

Room: Dover A

Presider: Patricia Simmons

Vincent Lunetta

John Penick

8:00AM – 2:00PM

*Research Committee Sponsored Pre-Conference Workshop:
Using Video Cases to Support and Study Preservice Teacher
Learning: Two Approaches*

Room: Dover C

Presider: Kathleen Roth, David Hammer

Catherine Chen

Karen Givvin

Leslie Atkins

Kathleen Schwillie

Janet Coffey

Daniel Levin

AM Break

10:00AM – 10:15AM

Session 1

12:30PM – 2:00PM

*Equity and Ethics Committee Sponsored Workshop: How
Identity and Cultural Frameworks Shape Access to and Ap-
propriation of Science Literacy*

Room: Dover A

Presider: Bryan Anthony Brown

Bryan Anthony Brown

Shawn Y. Holmes

Sanghee Choi

Crystal S. Gomillion

Edna Tan

Gillian U. Bayne

*Strand 1: Related Paper Set: Earth Systems Education as a
Platform for the Development of Thinking Skills and Scien-
tific Understanding*

Room: Essex B

Presider: Ayush Gupta

*Paper 1: Design-Based Research of an Oceanography Course
for High School Earth Sciences Students*

Carmit Cohen

Nir Orion

*Paper 2: System Thinking Skills at the Elementary School
Level*

Orit Ben Zvi-Assaraf

Nir Orion

*Paper 3: Characterization of High School Students' System
Thinking Skills in the Context of Earth Systems*

Tamar Basis

Nir Orion

*Paper 4: Earth Systems Education in a Multidisciplinary
Focus*

Nir Orion

Carmit Cohen

*Strand 2: Coordinator Organized Paper Set: Motivation,
Context, and Inquiry in Science Education*

Room: Laurel D

Presider: Alan Szeto

Paper 1: Science Anxiety Among Failing Students

Ebru Kaya

Ali Yildirim

Paper 2: Describing the Construction Process of Models of Physical Phenomena: A Discourse-Based Analysis of Elementary Student Modeling Conversations

Loucas Louca
Zacharias Zacharia
Constantinos Constantinou

Paper 3: Can Inquiry Teaching Enhance Motivation and Inquiry Abilities of Different Achievers?

Kuei-Hsiang Chen
Hsiao-Lin Tuan
Chih-Chung Tsai
Jung-Chi Chang

Paper 4: Motivation Theory in Action: Using Saltwater Aquaria to Teach Science in Schools

Giuliano Reis
Shelley Ross
Catherine C. neé Pennachetti
Wolff-Michael Roth

Strand 5: Coordinator Organized Paper Set: Cognition and Modeling

Room: Essex A

Presider: Christopher Wilson

Paper 1: Assessing Students' Understanding of Cladograms

Laura R. Novick
Kefyn M. Catley

Paper 2: Embedded Science Textbook Questions Used to Increase Comprehension

Cynthia Ghent
William Holliday

Paper 3: Lizards and Frogs or Lizards and Mammals: University Students' Understanding of Most Recent Common Ancestry

Nancy P. Morabito
Kefyn M. Catley
Laura R. Novick

Paper 4: Undergraduates' Abilities to Use Representations in Biology: Interpreting Phylogenetic Tree Thinking

Kristy L. Halverson
J. C. Pires
Sandra K. Abell

Strand 6: Related Paper Set: Research on Learning across Museum Contexts

Room: Laurel C
Presider: Jim Kisiel

Paper 1: Middle School Aged Students' Interactions with 3-D Visualizations on a Spherical Display at a Science Museum

Celeste Barthel

Paper 2: Examining the Role of Affect in Visitor Engagement with Touch Tanks

Coral Gehrke
Shawn Rowe

Paper 3: iPods and Chaos: Using Design Research and Clinical Interviews in an Interactive Exhibit

Molly Phipps

Paper 4: Teacher Perspectives in Ocean Sciences Education: A Look at the SMILE-CIOSS Partnership

Bronwen Rice
SueAnn Bottoms
Shawn Rowe

Strand 7: Symposium: Recruitment of Science and Mathematics Teachers: National and International Perspectives on Issues and Policies

Room: Kent B

Presider: Abdulkadir Demir

Abdulkadir Demir
Charlene M. Czerniak
Fouad Abd-El-Khalick
Laura Moin
Valerie K. Otero
Frances Lawrenz

Strand 7: Coordinator Organized Paper Set: Approaches for Science Teacher Education II

Room: Kent C

Presider: Cherie McCollough

Paper 1: Concept Mapping to Promote Acquisition of Pedagogical Knowledge in Secondary Education Students

Barbara A. Austin

Paper 2: New Pre-Service Experiences in Authentic Settings: Family Learning Events in Science Teacher Education

Cherie McCollough

Paper 3: Crafting a Community-centered and Culturally Relevant Pedagogy in Preservice Science Teacher Education: A Collaborative Action Ethnography

Vicente C. Handa
Deborah Tippins
Norman F. Thomson

Paper 4: Enhancing Student Teachers' Reflective Thinking Through Reflective Practices

Miwha Park
Gyoungho Lee
Jinwoong Song
Young-Shin Park

Strand 8: Coordinator Organized Paper Set: Fostering Educational Change

Room: Dover B

Presider: Avi Hofstein

Paper 1: Sustainable Improvements of Science Teaching Through the Development of Local School Science Cultures

Jan Solberg

Paper 2: Building Leadership to Support Teachers' Integration of Technology-Enhanced Science Instruction

Libby F. Gerard
Jane B. Bowyer
Ronald W. Marx

Paper 3: Science Teacher Thinking About Mentoring as Revealed Through Written Cases

Thomas R. Koballa
Julie Kittleson
Leslie Bradbury
Michael Dias

Strand 10: Symposium: Assessment Linked to Middle School Science Learning Goals: Development and Use

Room: Essex C

Presider: George M. Bodner

George DeBoer
Cari F. Herrmann-Abell
Kristen A. Lennon
Natalie S. Dubois

Strand 11: Coordinator Organized Paper Set: Learning, Participation, and Access in Physics Education

Room: Laurel A

Presider: Christopher Emdin

Paper 1: Students, Language, and Physics: Discourse in the Science Classroom

Susan M. Kowalski

Paper 2: Construction of a Latent Variable to Predict Physics Access in U.S. Urban High Schools

Angela M. Kelly
Keith Sheppard

Paper 3: The Impact of Gender on Conceptual Theoretical Framework and Cognition Across Cultures

Sharon Schleigh
Douglas Clark
Cynthia D'Angelo

Paper 4: Adopting Gender Stereotypes: Unraveling Bias From Student Evaluations of Their Teachers

Geoff Potvin
Zahra Hazari
Robert H. Tai
Philip M. Sadler

Strand 12: Coordinator Organized Paper Set: Teaching with Technologies

Room: Laurel B

Presider: Kate Popejoy

Paper 1: Pre-service Teachers' Perspectives Towards Integrating Interactive Whiteboard into Elementary School Natural Science Course

Tzu-Hua Wang
Kai-Ti Yang

Paper 2: What Facilitates Integration of One-to-One Laptops According to Science Teachers?

Aviva Klieger
Yehuda Ben-Hur
Nurit Bar-Yossef

Paper 3: Pre-service Biology Teachers' Use of Interactive Display Systems: Reform-Based Teaching or Chalk and Talk?

Christine G. Schnittka
Ian C. Binns
Randy L. Bell

Paper 4: Constructing Classroom Meaning with the Integration of Computer Technology into Science Teaching

Karthigeyan Subramaniam

Strand 13: Coordinator Organized Paper Set: Students' Views of the Nature of Science

Room: Kent A

Presider: Lawrence C. Scharmann

Paper 1: Teaching Nature of Science to K-2 Students: What Can They Gain From Instruction and What Influences Changes in Their Views?

Valarie L. Akerson
Lisa A. Donnelly

Paper 2: Correlating Students' Drawings of Scientists with Interview Data: Further Validation of E-DAST

Donna L. Farlland
William F. McComas

Paper 3: An Instrument to Assess Views of Scientific Inquiry: The VOSI Questionnaire

Renee S. Schwartz
Norman G. Lederman
Judith S. Lederman

PM Break

2:00PM – 2:30PM

Session 2

2:30PM – 4:00PM

International Committee Sponsored Session: ESERA: The Impact of Science Education Reform in Europe

Room: Dover A
International Committee

Presiders: Mei-Hung Chiu and Justin Dillon
Discussant: Manuela Welzel

Paper 1: Relations Between Public Policy and the Research-Based-Design of Instructional Materials: Their Mutual Influences

Andree Tiberghien

Paper 2: Danish Science Municipalities—A Convergence of Science Education Research and Political Trends

Jan Solberg

Paper 3: A “Centre of Maths & Science Education” as a Specific Learning Site for Pupils, Pre- and In-Service Teacher and the General Public

Franz Bogner

Paper 4: Swiss National Standards—A Political Mandate to Researchers in Science Education

Albert Zeyer
Marco Adamina
Francois Gingin
Peter Labudde

Strand 1: Symposium: Pedagogical Content Knowledge Development as Conceptual Change

Room: Essex B

Presider: Eva E. Toth
Discussant: Sandra K. Abell
Peter Hewson
Jan Van Driel
Elizabeth Davis
Michela Nelson
Carrie Beyer

Strand 2: Coordinator Organized Paper Set: Modeling Scientific Practices in Science Classrooms

Room: Laurel D

Presider: Alan Oliveira

Paper 1: Identity and Science Education: Sociocultural Approach

Ashraf Shady

Paper 2: Meaningful Learning About Models and Modeling Modeling Using Authentic Chemical Practices as Contexts

Gjalt T. Prins
Astrid M. W. Bulte
Albert Pilot

Paper 3: Development of Senior High School Students' Modeling About Air Quality

Li-Fen Lin
Ying-Shao Hsu
Hsin-Kai Wu
Fu-Kwun Huang

Paper 4: Developing the Practice of Scientific Modeling through Classroom Discussions

Ayelet Weizman
Yael Schwartz
David Fortus
Joe Krajcik

Strand 5: Coordinator Organized Paper Set: Reasoning and Assessment

Room: Essex A

Presider: Brett Merritt

Paper 1: College Science Faculty's Assessment Practices: Trends From the National Study of Postsecondary Faculty

Karleen R. Goubeaud

Paper 2: Assessment-Informed Instructional Design to Support Principled Reasoning in College-Level Biology

Gail Richmond
Joyce Parker
Mark Urban-Lurain
Brett Merritt
John Merrill
Ronald Patterson

Paper 3: Principled Reasoning and Procedural Display in Undergraduate Biology Education: A Model for Assessment

Christopher D. Wilson
Brett Merritt
Andy W. Anderson
John Merrill
Joyce Parker

Paper 4: Understanding Undergraduate Students' Conceptions In Science: Using Lexical Analysis Software to Analyze Students' Constructed Responses in Biology

Rosa A. Moscarella
Mark Urban-Lurain
John Merrill
Gail Richmond
Ronald Patterson
Joyce Parker

Strand 6: Coordinator Organized Paper Set: New Ways of Researching Field Trips

Room: Laurel C

Paper 1: Building a Quality Field Trip Teacher Survey Instrument

Martin Storksdieck

Paper 2: The Impact of Multiple Visits to an Informal Learning Facility on the Development of Interest in Science

Pascal Guderian
Burkhard Priemer

Paper 3: Using Personal Meaning Mapping to Assess Learning at a Natural History Museum

Gary M. Holliday
Norman G. Lederman
Judith S. Lederman

Paper 4: Best Practices for Field Days Assessment Tool

Stephan P. Carlson
Joe Heimlich
Martin Storksdieck
Dawn Tanner

Strand 7: Symposium: Preservice K-8 Teachers' Developing Pedagogical Context Knowledge Within an Integrated Science and Education Continuum

Room: Kent B

Presider: Danielle J. Ford

Danielle J. Ford
Steve Fifield
Xiaoyu Qian
Deborah Allen
Richard Donham
Yovita Gwekwerere

Strand 7: Coordinator Organized Paper Set: Preservice Teachers' Perceptions of Science

Room: Kent C

Presider: John Tillotson

Paper 1: Teachers' Classroom Attitude and Behavior and Their Effects on Students' Science Learning

Tahsin Khalid

Paper 2: Out-Of-School Learning-To-Teach Experiences as Support for Professional Identity Development: Impact of Facilitating an Inquiry-Based Camp

Michael A. Occhino
April L. Luehmann

Paper 3: The Impact of Pre-service Program Experiences on Early-Induction and Post-Induction Science Teachers' Epistemological Beliefs

John Tillotson
Monica J. Young

Paper 4: Future Elementary Teachers' Epistemological Beliefs and Views about the Nature of Science

Charles B. Mamolo
N. Sanjay Rebello

Strand 8: Related Paper Set: Using the Communication in Science Inquiry Model to Facilitate Learning

Room: Dover B

Presider: Dale R. Baker

Paper 1: Using the Communication in Science Inquiry Model to Facilitate Learning Biology

Dale R. Baker
Elizabeth Lewis
Sibel Uysal
Senay Yasar-Purzer
Michael Lang
Perry Baker

Paper 2: Measuring Short-Term Teacher Learning of Scientific Classroom Discourse Communities

Elizabeth Lewis
Dale R. Baker
Senay Yasar-Purzer
Sibel Uysal
Michael Lang

Paper 3: Teachers' Meaning-Making During Professional Development of Scientific Classroom Discourse Communities

Sibel Uysal
Senay Yasar-Purzer
Dale R. Baker
Elizabeth Lewis
Michael Lang

Paper 4: Teachers' Progress Towards a Modernist View of Nature of Science Communication

Senay Yasar- Purzer
Sibel Uysal
Dale R. Baker
Elizabeth Lewis
Michael Lang

Strand 10: Symposium: PISA 2006: Results from an International Assessment of Scientific Literacy

Room: Essex C

Presider: Bruce G. Waldrup

Barry McCrae
Raymond J. Adams
Peter Fensham
Robert Laurie
Rodger W. Bybee
Manfred Prenzel

Strand 11: Coordinator Organized Paper Set: Implications of Identity for Science Teaching and Learning

Room: Laurel A

Presider: Angela Johnson

Paper 1: Critical Science Literacy: Identifying Scientific Inscription in Lives of Resistance

Matthew Weinstein

Paper 2: Learning to Teaching Science: Negotiating Identity and Discursive Conflict in the Science Classroom

Maria S. Rivera Maulucci

Paper 3: Negotiating Respect and Learning in a Middle School Science Classroom

Adriane M. Slaton
Howard M. Glasser
Angela Calabrese-Barton

Strand 12: Symposium: Learning Science Through Video Games

Room: Laurel B

Presider: Carolyn Parker

Leonard A. Annetta
Shawn Y. Holmes
James Minogue
Meng-Tzu Cheng

Strand 13: Coordinator Organized Paper Set: Historical/Contextual Perspectives on the Nature of Science

Room: Kent A

Presider: Renee S. Schwartz

Paper 1: The Nature and Role of Evidence in Addressing Controversial Science Content

Daniel Dickerson

Paper 2: The Model Muddle: The Necessity of Epistemology for Learning Science

Michael R. Matthews

Paper 3: Genetics Instruction with History of Science: Nature of Science Learning

Sun Young Kim
Irving E. Karen

Paper 4: A Dispute on Colour Optics

Helmut F. Mikelskis
Lutz Kasper

Session 3

4:15PM – 5:45PM

Committee Sponsored Session: How Can We Translate and Communicate our Science Education Research to Practice

Publications Advisory
Room: Dover A

Publications Advisory Committee
Presider: Barbara A. Crawford

Barbara A. Crawford
Carla Zembal-Saul
Sandra K. Abell
William Holliday
Julie Luft

Strand 1: Symposium: Investigating Dynamic Transfer in Multiple Contexts

Room: Essex B

Presider: Eva E. Toth

Dean Zollman
N. Sanjay Rebello
Edgar G. Corpuz
Jacquelyn J. Haynicz
Bijaya Aryal
Dyan McBride
Edward F. Redish

Strand 2: Coordinator Organized Paper Set: Building Science Identities and Student Achievement

Room: Laurel D

Presider: Anat Yarden

Paper 1: How Girls and Boys Use Computers in Physics Classes

Helga Stadler

Paper 2: The Role of Identity and Motivation to Resolve Misconceptions

Meena M. Balgopal

Paper 3: An Investigation of Factors Associated with Students' Interest in Physics

Hayati Seker

Aysegul Terzi

Paper 4: The Effects of Different Science-Subject Achievements on Self-Concept in Science Learning - Are They Same for 8th Graders in Taiwan?

Jen Tsung-Hau

Lee Che-Di

Chang Chun-Yen

Strand 5: Coordinator Organized Paper Set: Reasoning and Argumentation

Room: Essex A

Presider: Gail Richmond

Paper 1: Scientific Reasoning Skills Development in an Introductory Biology Course Sequence for Undergraduates

Melissa S. Schen

Paper 2: Quality and Evolution of Students' Argumentation in Organic Agriculture Issue

Shu-Mey Yu

Paper 3: Examining Students' Scientific Arguments as a Consequence of Inquiry-Based Chemistry Experiences

Aeran Choi

Brian Hand

Thomas Greenbowe

Paper 4: Decision Making in Higher Education: A Probe into STES-Oriented Courses

Uri Zoller

David Ben-Chaim

Orit Herscovitz

Azaiza Ibtisam

Strand 6: Coordinator Organized Paper Set: Learning from Underrepresented Learners in Informal Science Studies

Room: Laurel C

Presider: John Falk

Paper 1: Gender Differences in Elementary School Students' Environmental Education

Sarah J. Carrier

Anthony J. Guarino

Paper 2: The Impact of Free-Choice STEM Experiences on Girls' Interest, Engagement, and Participation in Science Communities, Hobbies and Careers: Results of Phase 1

Lynn D. Dierking

Dale McCreedy

Paper 3: African American Parents' Perspectives of Informal Science: A Cultural Dimension

Jamila R. Simpson

Eileen C. Parsons

Paper 4: Free-Choice Family Learning in a Bilingual Marine Science Program: A Qualitative Investigation of Interactions and Long-Term Impacts Among Mexican-Descent Families

Heidi I. Schmooch

Shawn Rowe

Strand 7: Coordinator Organized Paper Set: Approaches for Science Teacher Education I

Room: Kent B

Presider: Peter W. Hewson

Paper 1: Does Completion of University Science Courses Affect the Spatial Ability of Preservice Elementary/Middle Teachers?

Alice A. Black

Paper 2: Conceptual Change in Pre-service Teacher Belief Structures-Through Japanese Lesson Study

Brian S. Fortney

James P. Barufaldi

Paper 3: Teaching Argumentation to Pre-Service Science and Technology Teachers: The Critical Thinking Group

Peter W. Hewson

Maureen Robinson

Paper 4: Investigation of Pre-service Teachers' Reasoning Abilities and Learning Approaches in Inquiry Based Learning Environment

Sinan Ozgelen

Esme Hacieminoglu

Ozgul Yilmaz-Tuzun

Strand 7: Coordinator Organized Paper Set: Assessing Pre-service Teachers' Knowledge

Room: Kent C

Presider: Kimberly A. Staples

Paper 1: Persistent Misconceptions of Biological Concepts Among Preservice Teachers and 2nd Grade Students: The Power of Probing

Kimberly A. Staples

Paper 2: Relationship Between Environmental Literacy and Background Characteristics of Teacher-Training Students-Implications for Training Programs

Sara Peer

Daphne Goldman

Bela Yavetz

Paper 3: Investigating the Pedagogical Content Knowledge of Pre-Service Elementary Teachers Concerning Models

Susan A. Everett

Gail R. Luera

Charlotte A. Otto

Paper 4: Design and Development of an Instrument to Assess Pedagogical Content Knowledge of Inquiry Science Teaching

Betty Adams

David Schuster

William W. Cobern

Brooks Applegate

Renee S. Schwartz

Adriana Undreiu

Paul Vellom

Strand 8: Coordinator Organized Paper Set: Fostering Content Knowledge and NOS

Room: Dover B

Presider: Kefyn M. Catley

Paper 1: Explicit Nature of Science Instruction: Can It Change In-Service Teachers' Perceptions of NOS?

Monica J. Macklin

April D. Adams

Paper 2: The Pedagogical Beliefs and Values of Physics Alternative Certification Teacher Candidates

Kathleen A. Falconer

Joseph L. Zawicki

Paper 3: Connecting Professional Development to Classroom Based Instruction

Kimberly A. Lebak

Norma Boakes

Paper 4: Using a Concept Map to Guide Instruction: The Impact on Teachers' Understanding of Evolution

Susan Gomez-Zwiep

Shawn Y. Holmes

Strand 10: Coordinator Organized Paper Set: Curriculum Implementation I

Room: Essex C

Presider: Douglas Huffman

Paper 1: Fidelity of Implementation to Instructional Strategies as a Moderator of Science Curriculum Unit Effectiveness

Carol O'Donnell

Sharon J. Lynch

Paper 2: Middle School Science Curriculum: Coherence as a Design Principle

Yael Shwartz

Ayelet Weizman

David Fortus

Joe Krajcik

Brian J. Reiser

Paper 3: A Framework for Measuring Fidelity of Implementation of Science Instructional Materials

Jeanne R. Century

Mollie Rudnick

Cassie Freeman

Debbie Leslie

Murat Kahveci

Andy Isaacs

Paper 4: Measuring Fidelity of Implementation: Understanding "Critical Components" of Science Instructional Materials

Mollie Rudnick

Jeanne R. Century

Cassie Freeman

Debbie Leslie

Murat Kahveci

David Beer

Strand 11: Symposium: Immigration, Culture, and Science Education in New York City

Room: Laurel A

Presider: Karen E Phillips

Wesley B. Pitts

Ashraf Shady

Gillian U. Bayne

Karen E. Phillips

Kenneth G. Tobin

Strand 12: Coordinator Organized Paper Set: Technology and Students' Conceptual Learning

Room: Laurel B

Paper 1: The Use of Internet-Based Instruction for the Development of Conceptions of and Approaches to Learning Science in a Physiology Class

Jhy-Chong Liang
Chin-Chung Tsai

Paper 2: The Application of the 3D Virtual Reality on Field Trip: Taking the Example of Hsiaooyukeng

Ming Chao Lin
Chun-Yen Chang

Paper 3: Promoting Middle-School Students' Spatial Perception of the Moon Phases with a Web-Based Module

Meytal Hans
Yael Kali
Yoav Yair

Paper 4: Virtual World, Real Impact: Gender, Race and The Use of a 3D Virtual World to Teach Concepts Around Water Quality

Janice L. Anderson
Cindy Jong
Mike Barnett

Strand 13: Coordinator Organized Paper Set: Socio-cultural Studies of the Nature of Science

Room: Kent A

Presider: Fouad Abd-El-Khalick

Paper 1: Children's Practice of the Social Construction of Scientific Facts: Meta-Ethnographic Synthesis and Science Education Research

James B. Cooper

Paper 2: Student Predispositions Toward Understanding Evolutionary Concepts

Ronald S. Hermann

Paper 3: The Applicability of Science to Decision Making: Moral & Reflective Factors

Sharon Dotger
Lisa Johnson
Benjamin H. Dotger

Paper 4: Scientists, Profit-driven Science, and School Science
John Bencze

Gervase M. Bowen
Maurice DiGiuseppe
Marijana Kanisek

Evening Events

6:00PM – 7:00PM

Room: Dover C

Membership and Elections Committee Sponsored Session: Mentor-Mentee Nexus

Membership Committee
Presider: Mary M. Atwater

Brian Fortney
Laura Henriques
Julie Grady

7:00PM – 9:00PM

Opening: Presidential Welcome Reception—All invited!

Room: Harborside Ballroom



Monday, March 31

NARST Committee Meetings

7:00AM - 8:15AM

Awards Committee Chairs and Co-Chairs Meeting

Room: Essex A

Equity and Ethics Committee Meeting

Room: Laurel A

External Policy and Relations Committee Meeting

Room: Laurel B

International Committee Meeting

Room: Essex B

Membership and Election, Committee Meeting

Room: Laurel C

Program Committee Meeting

Room: Laurel D

Publications Advisory Committee Meeting

Room: Kent A

Research Committee Meeting

Room: Kent B

Ad hoc: History of Science Education Committee Meeting

Room: Kent C

Plenary Session 1

8:30AM – 9:45AM

Room: Grand Ballroom V & VI

Program Committee Sponsored Plenary 1:

Marcia Linn, Keynote Speaker: Science, Technology and Policy

Presider: Penny J. Gilmer

Session 4

10:15AM – 11:45AM

Strand 1 & Strand 9 Combined: Interactive Poster Session

Room: Laurel B

Presider: Shawn Rowe

Strand 1

Paper 1: Understanding the Relationship Between Learning and Forms of Representations by Analyzing Students' Mental Models of Atomic Structure

Eun Jung Park

Paper 2: Representational Tools for Teaching Science: Designing a Research-Based Approach

Eva E. Toth

Paper 3: A Comparison of Visual Representations of DNA Replication

Michelle Cook

Eric N. Wiebe

Glenda Carter

Paper 4: Teaching and Learning From a Representational Perspective: Insights From a Classroom Video Study

Peter Hubber

Maria F. Haslam

Russell W. Tytler

Strand 9

Paper 1: Learning About Sound through Inquiry. A Study with 8th Grade Pupils

Monica L. Baptista

Ana M. Freire

Paper 2: Improving Our Practice: Teachers' Stories about Supported Collaborative Inquiry

Tamara D. H. Nelson

Keith Johnson

Charlotte Waters

Linda Lebard

Strand 1: Interactive Poster Session--Science Learning and Conceptual Change Poster Session

Room: Dover B

Presider: Vicente Talanquer

Paper 1: Extending Grade One Student's Views of the Social Nature of Scientific Work Through the Use of Stories About Scientists

Azza Sharkawy

Paper 2: Peer Scaffolding and Transfer in the Context of Learning

Bijaya Aryal

Dean A. Zollman

Paper 3: Investigating Students' Ideas About Wavefront Aberrometry

Dyan McBride

Dean A. Zollman

Paper 4: Student Preconceptions of the Role of Pollination in the Plant Life Cycle

Stephen M. Rybczynski

Elisabeth E. Schussler

Paper 5: Christopher Columbus Discovers ... Magnetic Declination Changes! Improving Metaconceptual Knowledge with Learning About Change of Models and Historical Mistakes in Science

Lutz Kasper
Helmut F. Mikelskis

Paper 6: Understanding Middle School Students' Views of the Nature of Science: Perspectives from a Seventh Grade Classroom

Jamie M. Chan
Kimberly D. Tanner

Paper 7: Understanding Novices' Versus Experts' Conceptions About the Biological Basis of Learning and Memory

Rebecca M. Fulop
Kimberly D. Tanner

Paper 8: A Longitudinal Study of Elementary Students' Understandings of Lunar Concepts Related to Moon Phases

Mark Guy
Tim Young

Paper 9: Learning to Think about Gravity II: Aristotle, Newton, and Einstein

Esther L. Zirbel
Claudine I. Kavanagh
Cary Sneider

Paper 10: Investigating the Relationship Between Students' Motivation and Concept Learning in a Digital Learning Context

Chung-Hsien Tseng
Hsiao-Lin Tuan
Chi-Chin Chin

Paper 11: Relationship Between Students' General and Theory-Specific Beliefs on the Nature of Science

Kerstin Kremer
Detlef Urhahne
Juergen Mayer

Paper 12: An Examination of Fifth- to Eighth- Grade Students' Understandings About Inquiry and Doing Inquiry

Eunkyung Ko
Byoung-Sug Kim
Norman G. Lederman

Paper 13: Cross-Cultural Analysis of Knowledge Structure Coherence and Understanding of Force

Douglas Clark
Sharon Schleigh
Cynthia Dangelo
Gokhan Ozdemir
Helen Zhang
Edgar Corpuz

Strand 2: Interactive Poster Session--Theorizing and Modeling Inquiry

Room: Grand Ballroom Salon 1

Presider: Christopher Emdin

Paper 1: High School Students' Understanding of the Distinction Between Scientific Theories and Scientific Laws

Eun Ah Lee
Byeong-Geon Park

Paper 2: "Maybe The Algae Was From The Filter": Theorizing 'Maybe' And Its Use By Young Children In Conversation

Susan A. Kirch
Christina Siry

Paper 3: Science as Argument-Driven Inquiry: The Impact on Students' Conceptions of NOS

Victor D. Sampson
Jonathon Grooms

Paper 4: Learning to Think Like Scientists with the PET Curriculum

Valerie K. Otero
Kara Gray

Paper 5: Elements of Online Inquiry: Integrating Inquiry With Content in an Online Chemistry Course for Teachers

Mary V. Mawn
Kathleen S. Davis

Paper 6: The Comparison of Scientific Creativity Levels Between Students and Teachers

Anne Laius
Miia Rannikmäe

Paper 7: The Planetarium as an Outdoor Learning Environment

Ayelet Weizman
Nir Orion

Paper 8: A Discourse-Based Analysis of Student Inquiry in Elementary Science Classroom: Examining Students' Mechanistic Reasoning, Analogical Reasoning, Argumentation and Scientific explanations

Loucas T. Louca
Zacharias C. Zacharia
Aristos Evagorou

Paper 9: The Influence of Prior Knowledge and Cognitive Load Theory on Instructional Design Principles

Michelle Cook
Glenda Carter
Eric N. Wiebe

Paper 10: Sixth Graders' Approaches to Maps and Mapping

Angelica Reid-Griffin
Glenda Carter
Eric N. Wiebe
John Park
Susan Butler

Strand 3: Interactive Poster Session--Science Teaching at Primary School

Room: Laurel A

Presider: Valerie L. Talsma

Paper 1: Elementary School Teachers' Learning of Science Content Through Teaching

Brian E. Kinghorn

Paper 2: Revisiting Elementary Teachers' Physical Science Conceptions After the No Child Left Behind Act

Nazan U. Bautista

Paper 3: Improving the Argumentation Skills of the Sixth Graders Through the Instruction of the Socioscientific Issues in Taiwan

Shu-Sheng Lin
Po-Hung Huang

Paper 4: Inquiry and Astronomy: Investigations in Celestial Motion

Julia D. Plummer
Rebecca Rice

Paper 5: Unpacking Sixth Grade Students' Mental Models of Popular Astronomy Concepts

Dorian W. Janney
William Holliday

Paper 6: Infusing Guided TAPing with a Socioscientific Issue in Science Teaching

Chi-Chin Chin
Wei-Cheng Yang
Hsiao-Lin Tuan

Paper 7: On the Nature of Teaching Nature of Science: Preservice Early Childhood Teachers' Instruction in Preschool and Elementary Settings

Valarie L. Akerson
Cary A. Buzzelli
Lisa A. Donnelly

Paper 8: Patterns in the Science Knowledge of Elementary Preservice Teachers Engaged in Inquiry Teaching

Betty J. Young
Barbara Sullivan Watts
Robert Pockalny
Barbara L. Nowicki

Paper 9: Puppets Promoting Reasoning and Argument Science

Shirley Simon
Stuart Naylor
Brenda Keogh
Jane Maloney
Brigid Downing

Strand 4: Interactive Poster Session--Teaching Strategies, Assessment, and Technology

Room: Dover A

Presider: Melissa Luna

Paper 1: Developing Assessments of Science Content Knowledge for Teaching

Mark Olson

Paper 2: Suggestion of a New Strategy to Teach Evolution

Minsu Ha
Heeyoung Cha

Paper 3: A Comparison of the Teaching Strategies for Problem Solving in Senior High School Physics

Jang-Jeng Chern
Ming-Jun Su
Ming-Liang Lin
Shing-Ho Chiang

Paper 4: Integrating FAM-WATA into Elementary School Natural Science and Technology Education: Analyzing the Benefits for Students with Different Cognitive Styles

Chao Li Ling
Tang Xing Juan
Yen Chiung Fen
Wang Tzu Hua
Wang Wei Lung

Paper 5: The Effect of Reflective Discussions Following Inquiry-Based Laboratory Activities on Students' Views of Nature of Science

Hagop Yacoubian
Saouma B. BouJaoude

Strand 5: Interactive Poster Session--College Science Teaching and Learning

Room: Essex B

Presider: Peter Garik

Paper 1: Misconceptions University Students Have in Astronomy

Hyunju Lee

Paper 2: Argumentation for the Future

Emily J. Diefendorf

Gregory J. Kelly

Paper 3: Does Computer-Based Animation Sequence Impact Student Understanding of the Model of Global Atmospheric Circulation?

Daniel W. Harris

William Holliday

Paper 4: Immediate Feedback From Videotaping to Increase Science Process Skills in General Chemistry Lab

Dawne Taylor

Amy L. Rogers

Paper 5: Influences on Undergraduate Physical Science Learners' Subject Decision Making

Len R. Newton

Andy Noyes

Andy Clapham

Paper 6: Biology Students' Ideas about Germs and Illness: An Exploratory Study of Conceptual Change

Cheryl Berg

Stephanie Touchman

Muhsin Menekse

Paper 7: Exploring the Relationships Between Epistemic Beliefs and Nature of Science in a College Biology Course

Moon-Heum Cho

Deanna M. Lankford

Daniel J. Wescott

Deborah Cunningham

Paper 8: Undergraduate Learning at the Interface of Mathematics and Biology

Cynthia Passmore

Julia Svoboda

Carole Hom

Grosberg Rick

Paper 9: Effects of Embedding Nature of Science Concepts in a College Level Physical Science Course

Lisa M. Martin-Hansen

John Wilson

Joseph Placanica

Robert Gable

Paper 10: Visual Physics: Using a Case Correlation Study to Inform Introductory Physics Course Design

Cathy M. Ezrailson

Cathleen C. Loving

Peter L. McIntyre

Teruki Kamon

Strand 6: Interactive Poster Session--Beyond the Museum's Walls: Informal Science Across Contexts

Room: Kent B

Presider: Shawn Rowe

Paper 1: Understanding Science (Fairs) in the News Media

G. Michael Bowen

J. Lawrence Bencze

Elizabeth Sampson

Paper 2: Evidence-based Explanation of High School Students in Natural History Museum

JooHye Jung

Paper 3: A Review of Measures of Student Concept Learning From Field trips to Informal Science Institutions

William A. Watson

Paper 4: Enhancing Science Understanding for Middle School Students Through Interactions With a Field Botanist

Debby Peck

Karen S. Sullenger

Paper 5: 21st Century Community Learning Science Education Camp

Andre M. Green

Phillip Feldman

Paper 6: Responses to Traveling Do-It-Yourself Science Exhibits in Community Settings

Leonie Rennie

Rosemary S. Evans

Fiona E. Mayne

Paper 7: Informal Settings for Learning and Achievement: Museums in Action

Sandra T. Martell

Elizabeth Drame

Raquel Oxford

Paper 8: A Cultural-Historical Activity Theory Perspective on Science Outreach Programs

Nicole Arsenault

G. Michael Bowen

J. Lawrence Bencze

Bradley Tucker

Paper 9: Involving Elementary Teachers in Informal Learning Experiences

Nicholas Stroud

Megan Roberts

Jenny Ingber

Katherine Brown

Strand 7: Interactive Poster Session--Preservice Science Teacher Education

Room: Grand Ballroom Salon II

Presider: Meredith Park Rogers

Paper 1: Learning and Teaching Science as Inquiry

Hui-Ju Huang

Paper 2: Investigating "Life in a Square": An Examination of Elementary Preservice Teachers' Understanding of Observation and Inference

Meredith Park Rogers

Paper 3: Contributions of the Mentor Teacher: Opportunities for Pre-service Science Teacher Learning During the Methods Semester

Karen A. Travers

Christopher J. Harris

Paper 4: Navigating the Bottleneck of Curriculum Planning: Exploring the Struggles in Planning the Pre-service Elementary Science Method Course

Hedy Moscovici

Irene Osisoma

Paper 5: Validation of Mentoring for Effective Primary Science Teaching Instrument for a Turkish Sample

Ozgul Yilmaz-Tuzun

Nurcan Turker

Paper 6: Teacher-in-Residence Programs: Supporting Physics Teacher Education at the University and Beyond

Marcia K. Feters

Paul Hickman

Paper 7: Giving Priority to Evidence in Scienceand History? How Preservice Elementary Teachers Make Sense of Evidence in Science and Social Studies Methods Courses

Leigh A. Haefner

Timothy D. Slekar

Paper 8: Learning Physics by Listening to Children

Danielle B. Harlow

Valerie K. Otero

Paper 9: Preparing Secondary Science Teachers at the University of Arizona

Ingrid Novodvorsky

Vicente Talanquer

Debra Tomanek

Paper 10: BEST Model of Professional Development: Helping Science Intern Teachers to Meet the Needs at the Front Line

Ming-Liang Lin

Ming-Jun Su

Jeng-Fung Hung

Paper 11: Constructivist and Traditional Approaches to Teaching and Learning: Validation of Teacher Beliefs Survey

Bugrahan Yalvac

Nurcan Turker

Ozgul Yilmaz-Tuzun

Strand 8: Interactive Poster Session--Facets and Issues of Professional Development

Room: Grand Ballroom Salon IV

Presider: Carla Johnson

Paper 1: Context of Science Teachers' Learning: Inquiry-Based Teaching Practices of Beginning Science Teachers

Abdulkadir Demir

Sandra K. Abell

Paper 2: Does Change From Professional Development Programs Last? A Longitudinal Study of Sustained and Increased Science Teacher Improvement

Carla Johnson

Jane B. Kahle

Jamison D. Fargo

Paper 3: Community Advisory Panels in American Indian School Communities

Rebecca M. Monhardt

Vessela K. Ilieva

James Barta

Kurt Becker

Paper 4: Subject Mentors: Professional Development in a School-Based Mentor Training Program

Tung-Hsing Hsiung

Wen-Hua Chang

Chao-Ti Hsiung

Ricy Chang

Paper 5: Teachers' Burning Questions: Understanding Challenges That Science Teachers Face and Problem-Based Learning as a Framework to Support Teacher Researcher

Meilan Zhang

Tom J. McConnell

Mary Lundeberg

Matthew J. Koehler

Jan Eberhardt

Paper 6: The Impact of Teaching the Conceptual History of Physics as a Sequence of Models on the Understanding of the Nature of Science by Physics Teachers

Charles Winrich

Andrew Duffy

Arthur Eisenkraft

Russ Faux

Luciana Garbayo

Peter Garik

Paper 7: Building a Continuum of Practice: First Year Secondary Science Teachers

Julie Luft
Gillian H. Roehrig
Krista Adams
Selcen Guskey
Sarah Hick
Jonah Firestone

Strand 10: Interactive Poster Session-Curriculum, Evaluation, and Assessment

Room: Dover C

Presider: Kimberly D. Tanner

Paper 1: Plant Versus Animal Content in Elementary Science Textbooks

Elisabeth E. Schussler

Paper 2: Intended, Taught and Learned Curriculum: Student Learning Through a Problem-Based Environmental Health Science Curriculum

Nam-Hwa Kang

Paper 3: Tracking Students' Process of Learning

Dorita A. Demetriou
Constantinos Korfiatis

Paper 4: Collaborative Evaluation Communities in Urban Schools: Developing the Capacity of Teachers to Evaluate Science Programs

Dana Atwood
Douglas Huffman

Paper 5: Probing Middle School Students' Understanding of Ideas About Interdependence in Living Systems through Content-Aligned Assessment

Kristen A. Lennon
George DeBoer

Paper 6: Probing Middle School Students' Understanding of Ideas about Matter Transformations in Living Systems Through Content-Aligned Assessment

Natalie S. Dubois
George DeBoer

Paper 7: Developing a Two-Tiered Instrument with Confidence Levels for Assessing Students' Conceptions of Direct Current Circuits

Saed Sabah
Xiufeng Liu

Paper 8: The Nature of Scientific Thinking: Assessing How Students Respond to Lessons Designed to Develop Understanding of the Nature of Science and Modeling

Amanda Heffner-Wong
Tina Grotzer
Lucy Morris

Paper 9: Scaffolded Inquiry Curriculum for Science Learning

Ying-Shao Hsu
Fang-Ying Yang
Meng-Jung Tsai

Paper 10: Preliminary Use of an Assessment for Scientific Inquiry Creativity

Michelle R. McCombs
Marco Molinaro
Ken Peterson
Richard Ponzio

Paper 11: Innovating Science Curricular Materials for Future Citizenship- 3C-AIMS Project

Yeong-Jing Cheng
Ying-Shao Hsu
Wen-Hua Chang
Tsung-Hau Jen
Shu-Fen Lin
Che-Di Lee

Strand 11: Interactive Poster Session--Diverse Learners and Teachers in Science Education

Room: Laurel C

Presider: Bhaskar Upadhyay

Paper 1: Student Voice Matters: Using Student Feedback to Evaluate Curriculum in an After School Science Program

Janell N. Catlin

Paper 2: Dynamics of Successful Student Kinship Groups in a College Physics Class of Inner City High School Students

Konstantinos Alexakos

Paper 3: Highly Qualified Does Not Equal High Quality: A Study of Urban Stakeholders' Perceptions of Quality in Science Teaching

Rommel J. Miranda

Paper 4: An Analysis of the Association of Gender and Ethnicity with Departure from the Biology Major

Sarah A. Lang

Paper 5: Exploring Pakistani High School Student Understanding of Evolution

Anila Asghar
Jason Wiles
Brian Alters

Paper 6: Theory to Practice – Challenges and Successes Implementing an Inquiry-Based Science Curriculum with Diverse Learners and Its Impacts on Student Learning and Engagement
Sybil S. Kelley

William G. Becker
Dalton Miller-Jones

Strand 11: Interactive Poster Session--Science Careers and Identity Issues in Science Education
Room: Essex A

Presider: Felicia M. Moore

Paper 1: The Motivation and Perseverance of Women Science Students of Color
Angela Johnson

Paper 2: Negotiating Pathways to Successful Science Careers: The Life Experiences of African-American Women
Claudette Giscombe

Paper 3: Positioning in the World of Science: A Look at Four Youths' Hybrid Identity Work Within and Beyond a Math and Science Upward Bound Program
Jrene Rahm

Paper 4: Teachers' Self-Identity and Conceptual Hurdles to "Science For All"
Alejandro Gallard
Sherry A. Southerland

Paper 5: Women in Undergraduate Physics, Chemistry, Mathematics, and Computer Science: How Can We Sustain Them Through Graduation?
Barbara A. Burke
Dennis W. Sunal
Glenda Ogletree

Paper 6: Science Teachers' Conflicts and Practices in Relationship Between Science and Religion: A Life-Historical Approach to Two Realms
Hunkoog Jho
Miran Chun
Jinwoong Song

Paper 7: A Look at Meaning-Making Inside Partnership Projects Among Scientists, Museums and Schools: Struggles, Confusions or Cocreations?
Jrene Rahm

Strand 12: Interactive Poster Session--Technology in Science Classrooms
Room: Kent A

Presider: Christine G. Schnittka

Paper 1: Using Educational Computer and Video Games in K-12 Classrooms to Promote Learning: A Critical Literature Review
Janice L. Anderson

Paper 2: Multimedia Learning in a Real Classroom
Nathan Wood

Paper 3: Investigating the Use of ThinkerTools to Promote Learning of Newton's Laws of Motion - A Case Study
Han-Chin Liu
Hsueh-Hua Chuang

Paper 4: Interactive Whiteboards: Beginning a Study on Their Impact in a Wholly Wireless / Laptop Classroom Environment
Lyn C. Carter
Philip C. Clarkson

Paper 5: Engineering in Health Care: A Multimedia Curriculum for Secondary Science Teachers
Carolyn Parker
Taryn M. Bayles
Julia Ross

Strand 13: Interactive Poster Session--History, Philosophy, and Sociology of Science
Room: Essex C

Presider: Valarie L. Akerson

Paper 1: Research and Development of Nature of Science-Explicit Curricular Materials- Pedagogy Perspective
Sang-Chong Lieu
Wen-Ling Chen
Sufen Chen
Shu-Fen Lin
Mao-Tsai Huang
Tung-Hsing Hsiung

Paper 2: Research and Development of Nature of Science-Explicit Curricular Materials for the Dissolving Unit
Sufen Chen
Wen-Ling Chen
Shu-Fen Lin
Sang-Chong Lieu
Wen-Hua Chang

Strand 14: Interactive Poster Session--Environmental Issues
Room: Laurel D

Presider: Rita Anne Hagevik

Paper 1: Students' Post-Ecological Discourse in a Secondary One SETS (Science-Technology-Society-Environment) Education
Albert Zeyer

Paper 2: Earth and Environmental Science Textbooks' Coverage of Secondary Students' Concepts of Global Warming
Soyoung Choi
Dan P. Shepardson
Dev Niyogi
Umarporn Charusombat

Paper 3: Precipitation, Evaporation, and Condensation: Student Conceptions of the Hydrologic Cycle
Daniel P. Shepardson

Paper 4: High School Students' and Science Teachers' Knowledge of the Socioscientific Controversies on Global Climate Change
Virginie Albe

Paper 5: Children's Ideas About Rare and Threatened Species
Implications for Teaching
Demetra P. Hadjichambi
Konstantinos Korfiatis
Andreas Ch Hadjichambis

Paper 6: Rhetorical Analysis of Global Warming and Other Socioscientific Issues in Popular News Media
Daniel Dickerson
Craig Stewart
Rose Hotchkiss
Daniel Cutshaw
Julie Lambert

Strand 14: Interactive Poster Session – Environmental Education
Room: Kent C

Presider: Eleanor D. Abrams

Paper 1: Using the Model of Ecological Values to Examine Stability of and Changes in Children's Environmental Perceptions over Time
Bruce Johnson
Constantinos Manoli

Paper 2: Science Teacher Learning of Ecological Concepts in an Online Biology Course
Kathleen S. Davis
Mary V. Mawn

Paper 3: Connecting Community Elders with Primary Schools in Africa Using Mobile Phones and Web 2.0 Technologies
George E. Glasson
Micahael Evans

Paper 4: Improving Science Education for Sustainable Development
Michiel van Eijck
Wolff-Michael Roth

Paper 5: "Who Polluted the Potomac?" The Translation and Implementation of an Environmental Story in Brazilian and Turkish Elementary Classrooms
Alan Oliveira
Huseyin Colak
Valarie L. Akerson

Paper 6: Science Teachers' Motivation for Encouraging Students to Promote Individual, Social & Environmental Wellbeing
John Bencze
Steve Alsop
E. Sperling
J. Nazir
M. DiGiuseppe

Paper 7: Factors Influencing Students' Ecological Actions Following Participation in an Earth Education Program
Constantinos Manoli

NARST Business Meeting

Room: Grand Ballroom V & VI

12:00PM – 12:45PM

Free box lunch for attendees who have registered for this event

Session 5

1:00PM – 2:30PM

Committee Sponsored Workshop: IESDOE Workshop: Preparing Research Grant Proposals for the Institute of Education Sciences
Room: Dover A

Presider: Elizabeth Albro

Strand 1: Related Paper Set: Representation and Learning in Science: Exploring Recent Perspectives from Cognitive Science
Room: Essex B

Presider: Eva E. Toth

Paper 1: Representation and Learning in Science: Exploring Recent Perspectives from Cognitive Science

Vaughan Prain
Russell W. Tytler
Peter Hubber

Paper 2: Examining the Impact of Student Use of Multiple-Mode Representations on Argument Construction

Brian Hand
Aeran Choi
Thomas Greenbowe
Jacob Schroeder
William Bennett

Paper 3: Using Multi-Modal Representations to Improve Learning in Junior Secondary Science

Bruce G. Waldrup
Vaughan Prain
James Carolan

Paper 4: Pacific Crystal Project: Explicit Literacy Instruction Embedded in Middle School Science Classrooms

Robert Anthony
Christine Tippet
Larry Yore

Strand 1: Coordinator Organized Paper Set: Naive Beliefs and Mental Models

Room: Laurel C

Presider: Anat Yarden

Paper 1: On Constraints and Learning Progressions: The Case of "Structure of Matter"

Vicente Talanquer

Paper 2: The Challenges Ahead for Research and Development on Conceptual Change in Science

Reinders Duit
David Treagust

Paper 3: A Learning Progression for Apparent Celestial Motion

Julia D. Plummer
Joe Krajcik

Paper 4: Investigating the Influences of Mental and Model Based Teaching-Learning Sequences on Students' Learning in Electricity

Jing-Wen Lin
Mei-Hung Chiu

Strand 2: Coordinator Organized Paper Set: Tutoring and Peer Guided Interactions in Science Education

Room: Grand Ballroom Salon IV

Presider: Gillian U. Bayne

Paper 1: Science for All and Inclusion: Learning From Dion Michele Hollingsworth Koomen

Paper 2: Metacognition and Affect in the Language of Chemistry Tutors

Karen E. Phillips
Mya Marquis

Paper 3: Learning From Young Experts. A Study of the Interplay Between Students and Young Experts in a Biology Lab

Jesús Piqueras
Nadia Seneby
Karim M. Hamza

Paper 4: What Are They Talking About? Lessons Learned From a Study of Peer Instruction Discourse

Mark James
Federica Barbieri
Paula Garcia

Strand 2: Coordinator Organized Paper Set: Investigating Teacher Epistemologies and Practices

Room: Laurel D

Presider: Ann Rivet

Paper 1: Student Learning in Problem-based Inquiry: From the Perspectives of Teachers

Nam-Hwa Kang
Daniel Balls

Paper 2: Using Preschool Science Activities to Impact Teaching Interactions and Learning Environments

Liesel Copeland
Kathleen C. Haynie

Paper 3: An Analysis of Teachers' Scientific Epistemological Views and Reactions to Incidents with Misconceptions

Harika Ozge Arslan
Aylin Cam
Ceyhan Cigdemoglu
Omer Geban

Strand 4: Related Paper Set: Identifying Different Levels of Strategies in Model-Based Instruction

Room: Dover C

Presider: John Clement

Paper 1: Six Strategy Levels for Model Based Teaching

John Clement

Paper 2: Determining Effective Target Concepts and Learning Pathways

Mary Anne Rea-Ramirez

Paper 3: Anchoring Student Reasoning in Prior Knowledge: Characteristics of Anchoring Cases in a Curriculum

A. Lynn Stephens
John Clement

Paper 4: Co-Constructing Explanatory Mental Models in High School Physics: Comparing Ratios of Teacher/Student Participation

E. Grant Williams
John Clement

Strand 4: Coordinator Organized Paper Set: Partnerships in Science Education

Room: Kent A

Presider: Angelica Reid-Griffin

Paper 1: Investigating the Short-Term and Longitudinal Impact of Scientist-Teacher Partnerships on Middle and High School Science Teachers

Loretta A. Kelley
Kimberly D. Tanner
Allison Busch

Paper 2: Examining the Role of Teacher Partnerships in Science Education Research, Professional Development, and Teacher Learning

Keisha Varma
Marcia Linn
Freda Husic

Paper 3: The Influence of Service Learning in High School Science on Undergraduate Majors

Vanessa L. Wyss
Christine Liu
Robert H. Tai

Strand 5: Coordinator Organized Paper Set: Life Sciences Methods of Instruction

Room: Essex A

Presider: Leslie Sandra Jones

Paper 1: A Matter of Concern: Marginalizing the Voice of Reason(ing) in College Science Teaching

Brett Merritt

Paper 2: An Interaction Analysis of College Biology Laboratory Students' Discussion Board Contributions

James H. Wandersee
William Holliday

Paper 3: Cogenerative Dialogue: Improving Undergraduate Biochemistry Teaching and Learning

Penny J. Gilmer
Mohammed Al-humiri
Donald D. Bratton

Paper 4: Math Bench Biology Modules: Web-Based Math for All Biology Undergraduates

Karen C. Nelson
Gili Marbach-Ad
Katerina V. Thompson
Patricia Shields

Strand 7: Related Paper Set: Preservice Elementary Teachers and Curriculum Materials

Room: Kent B

Presider: Cynthia Passmore
Discussant: Carla Zembal-Saul

Paper 1: Pre-Service Elementary Teachers' Appropriation of an Instructional Planning Framework

Jennifer Cartier
Wendy M. Sink
Priya Kannan
Jeanetta L. Kochhar

Paper 2: Preservice Elementary Teachers Learning to Use Science Curriculum Materials

Kristin Gunckel

Paper 3: Supporting Preservice Elementary Teachers' Critique and Adaptation of Science Curriculum Materials Using Two Types of Educative Supports

Carrie Beyer
Elizabeth Davis

Paper 4: Facilitating Preservice Teachers' Development of Professional Practice Through a Boundary Spanning Activity

Beth A. Covitt
Christina Schwarz
Minjung Bae
Jamie Mikeska

Paper 5: Planning and Teaching in Culturally Responsive Ways: Elementary Preservice Teachers' Integration of Multi-cultural Themes and Goals in Science Curriculum

Felicia M. Moore

Strand 8: Symposium: Elementary Teachers Learning Science Content through Video Analysis of Practice: Impact of the STeLLA Program on Teacher and Student Learning

Room: Dover B

Presider: Kathy Roth

Nicole Wickler
Meike Lemmens
Kathy Roth
Kathleen Schwillie
Catherine Chen
Sharon J. Lynch

Strand 8: Coordinator Organized Paper Set: Action Research as a Model of Teacher Professional Development

Room: Kent C

Presider: David Kanter

Paper 1: Generating "Knowledge of Practice" in the Context of Science Education: Case Studies in Teacher Learning

Karen C. Goodnough

Paper 2: STSE (Science, Technology, Society, and the Environment): Interactions Between Policy, Curriculum Development, Social Justice Issues and Political Content Knowledge.

Katherine Bellomo

Paper 3: Action Research and Support Groups - An Induction Framework for Novice STEM Teachers

Miri Barak

Shulamit Witenoff

Judy Dori

Paper 4: Science Teacher Education in Place: A Participatory Action Research Approach

Anne Fiona White

Sheliza Ibrahim

Steve Alsop

Strand 10: Coordinator Organized Paper Set: Curriculum Implementation II

Room: Essex C

Presider: Mollie Rudnick

Paper 1: The Impact of State Testing Under NCLB on Elementary Science Curriculum

Chris L. Miller

Paper 2: What Influence Does Regularly Using a Hands-On Science Curriculum Have on State Standardized Science Test Scores?

Scott A. Ashmann

Paper 3: Creating Tightly Aligned Assessments That Measure Student Growth in Primary Science in the Realities of an Urban School District

Sanlyn R. Buxner

Christopher J. Harris

Bruce Johnson

Strand 10: Coordinator Organized Paper Set: Assessment Development IV

Room: Grand Ballroom Salon 1

Presider: Barbara A. Crawford

Paper 1: Impact of Portfolio Assessment on Student Learning in Physics

Feral Ogan-Bekiroglu

Abdulkadir Gunay

Paper 2: A Computer-Based Instrument to Assess Understanding of the Concept of a Substance: Evidence from Rasch Analysis for Unidimensionality

Philip Johnson

Peter B. Tymms

Shaun P. Roberts

Strand 11: Symposium: Listening to Children: Understanding the Development of Everyday Expertise in Using Evidence, Keeping Healthy, and Understanding Scientific Practices

Room: Laurel A

Presider: Leah A. Bricker

Discussant: Richard Duschl

Philip Bell

Leah A. Bricker

Suzanne Reeve

Carrie Tzou

Heather Zimmerman

Richard A. Duschl

Paper 1: Developing Meanings for Science: Understanding How and When Children Consider Their Everyday Practices to be Related to Science

Paper 2: The Meanings Young People Attribute to the Word "Evidence"

Paper 3: How Everyday Activities Influence Children's Ideas About Health

Paper 4: Micros and Me: Applying Ethnographic Data to the Design of a Personally Consequential Science and Health Curriculum

Strand 12: Coordinator Organized Paper Set: Students' Perceptions and Attitudes towards Technologies

Room: Laurel B

Presider: Leonard A. Annetta

Paper 1: The Impact of Student Self-Efficacy on Scientific Inquiry Skills

Diane Jass Ketelhut

Paper 2: Students' Perceptions of the World Wide Web as a Research Tool in Science Learning

Hanna Kim

Paper 3: A Comparison of Self-Directed Learning in a Virtual World Environment to Traditional Science Teaching Methods

Catherine I. Norton
Margaret D. Corbit
Luis Ormaechea

Paper 4: Developing an Instrument to Assess Students' On-line Information Anxiety in Inquiry-Based Science Learning

Meng-Jung Tsai
Chien Chou
Ying-Shao Hsu
Fang-Ying Yang

Strand 14: Coordinator Organized Paper Set: Integrating Environmental and Teacher Education

Room: Grand Ballroom Salon II

Presider: Eleanor D. Abrams

Paper 1: Na Pua O Maunaloa: Transdisciplinary Literacies and Multiple Identities

Pauline W. Chinn

Paper 2: How Do People Make Decisions on Local Environmental Issues? Investigating Reasoning Modes of Elementary School Teachers in Taiwan

Chuan-Shun Lin
Shiang-Yao Liu

Paper 3: Environmental Education Professional Development Programs: Characteristics that Bring Positive Impacts

Toni Sondergeld
Charles Rop
Andrea Milner

Paper 4: Environmental Knowledge: What It Tells to Create Environmental Learning of Pre-Service Teachers in Turkey

Gaye Teksoz Tuncer
Ceren Tekkaya
Semra Sungur
Jale Cakiroglu
Hamide Ertepinar

Break

2:30PM – 3:00PM

Session 6

3:00PM – 4:30PM

Program Committee Sponsored Workshop: Research on K-12 Science and Math Education at the National Science Foundation

Room: Dover A

Presider: Julia Clark

Joan Ferrini-Mundy
Julia V. Clark
David Hanych
Sharon Locke
Larry Suter

Strand 1: Coordinator Organized Paper Set: Scaffolding Learning

Room: Laurel C

Presider: Gail Jones

Paper 1: Developing Students' Metacognition Through Re-aligning Their Views of the Nature of Chemistry Learning: An Activity Theory Perspective

Gregory P. Thomas

Paper 2: Progression in Grade 11 Students' Conceptions About the Aspects of the Particle Theory

Emine Adadan
Kathy C. Trundle
Karen E. Irving

Paper 3: Crossroads of Science and Mathematics: The Intersection of Scale and Proportional Reasoning

Amy Taylor

Paper 4: Impact of the Science Writing Heuristic as a Tool for Learning in Introductory Physics Laboratory

Mehmet Erkol
Brian Hand

Strand 1: Coordinator Organized Paper Set: Mixed Methods Studies of Conceptual Change

Room: Essex B

Presider: Catherine Milne

Paper 1: The Role of Content Knowledge in General Chemistry Students' Understanding About Molecular Polarity

Chia-Yu Wang
Lloyd H. Barrow

Paper 2: Scaffolding Activities to Facilitate Student Modeling of Microscopic Friction

Edgar G. Corpuz
N. Sanjay Rebello

Paper 3: High School Students' Scientific Epistemological Beliefs, Cognitive Structures Regarding Nuclear Power Usage, and Their Informal Reasoning on the Debates of Nuclear Power Usage

Ying-Tien Wu
Chin-Chung Tsai
Chun-Yen Chang

Paper 4: Writing for Learning Science: What Cognitive Tools Can Do to Structure Online Writing of Biostories

Stephen M. Ritchie
Donna L. Rigano
Louisa Tomas
Andy Yeh

Strand 1: New Poster Symposium: Learning Progressions for Environmental Science Literacy (Cross-Listed in Strand 14)

Room: Grand Ballroom Salon II

Presider: Julie Lambert and Charles Anderson
Discussants: Joseph Krajcik and Richard Duschl

Paper 1: Comparing Palestinian and American Students' Accounts of Water in Environmental Systems

Hasan Abdel-Kareem
Charles W. Anderson

Paper 2: Developing a Learning Progression for Energy in Environmental Systems

Hui Jin
Charles W. Anderson

Paper 3: Developing a K-12 Learning Progression for Carbon Cycling in Socio-Ecological Systems

Jing Chen
Lindsey Mohan
Charles W. Anderson

Paper 4: Developing a Learning Progression for Environmental Science Citizenship

Blakely K. Tsurusaki
Beth A. Covitt
Edna Tan
Charles W. Anderson

Paper 5: Developing Progress Variables for the Carbon Cycle

Karen Draney
Jinnie Choi
Yong-Sang Lee
Mark Wilson

Paper 6: Learning Progressions for Environmental Science Literacy

Kristin Gunckel
Blakely K. Tsurusaki
Karen Draney

Paper 7: The Development of a K-12 Learning Progression for Biodiversity in Environmental Systems

Josie Zesaguli
Blakely K. Tsurusaki
Brook Wilke
Charles W. Anderson
Christopher D. Wilson

Paper 8: A Learning Progression for Processes that Move Water through Socio-Ecological Systems

Kristin Gunckel
Beth A. Covitt
Hasan Abdel-Kareem
Charles W. Anderson
Rebecca Dudek

Paper 9: A Learning Progression for Processes that Alter Water Quality in Socio-Ecological Systems

Beth A. Covitt
Kristin Gunckel
Hasan Abdel-Kareem
Charles W. Anderson
Rebecca Dudek

Strand 2: Coordinator Organized Paper Set: Exploring Learning Experiences and Achievement in Science Education

Room: Grand Ballroom Salon IV

Presider: Shari L. Britner

Paper 1: Enabling Constraints: How Physics Olympics Competitions Can Create Meaningful Learning Experiences

Rachel F. Moll

Paper 2: How Do Misconceptions of Electrochemistry Identified in Interviews Enter Into Students' Reasoning in a More Authentic Setting?

Karim M. Hamza
Per-Olof Wickman

Paper 3: Context-Oriented Learning and Its Effects on Students' Achievement Levels in Chemistry Education

Sabine Fechner
Marion Haugwitz
Angela Sandmann
Elke Sumfleth

Paper 4: Content Linkage and Cumulative Learning in Chemistry and Physics

Knut Neumann
Anna Lau
Hans E. Fischer
Elke Sumfleth

Strand 2: Coordinator Organized Paper Set: Science Discourse and Argumentation

Room: Laurel D

Presider: Brandon Emig

Paper 1: Interpreting Student Learning Through Integrated Classroom-Field Trip Science Discourses in Kenya

Samson M. Nashon

David Anderson

Paper 2: Differences in the Ways More and Less Successful Groups Engage in Argumentation: A Case Study

Victor D. Sampson

Douglas Clark

Paper 3: The Nature of Student Discourse During the Generation of Argument

Andy R. Cavagnetto

Brian Hand

Lori Norton-Meier

Paper 4: Argumentation and Scientific Reasoning - An Exploration of Their Interrelationship

Claudia von Aufschnaiter

Christian Rogge

Jan Fleischhauer

Tanja Riemeier

Strand 3: Symposium: Effects of Scaffolded Guided Instruction on Student Achievement in Elementary Science

Room: Grand Ballroom Salon 1

Presider: Kathryn S. Weisbaum

Rick Vanosdall

Michael Klentschy

Laurie Thompson

Kathryn S. Weisbaum

Larry V. Hedges

Strand 4: Related Paper Set: Large Scale Quality Development Projects in Science Education

Room: Dover C

Presider: Thomas Koballa

Paper 1: Systematic Reform of Science and Mathematics Education: Results from a Decade of Collaborative Efforts in Ohio

Michael E. Beeth

Terry L. McCollum

Paper 2: Raising the Quality of Science Teaching in Austria - The Project IMST2

Helga Stadler

Konrad Krainer

Helmuth Khnel

Paper 3: School Innovation in Science: A Viable Model for System Change?

Russell W. Tytler

Paper 4: Improving Science and Mathematics Instruction - The SINUS-Project as an Example for Reform as Teacher Professional Development

Christian Ostermeier

Manfred Prenzel

Reinders Duit

Strand 5: Coordinator Organized Paper Set: STEM Recruitment and Course Reform

Room: Essex A

Presider: Bruce Patton

Paper 1: College Science Instructors' Views and Experiences of Curriculum Reform

Hsiu-Ling Chen

Sufen Chen

Paper 2: Examining the Impact of Critical Events on the Decisions of Science Undergraduates to Pursue Careers as Research Scientists

Tina M. Roberts

Marcelle A. Siegel

Linda Blockus

Sandra K. Abell

Paper 3: Attracting Undeclared College Students into STEM Majors Through Their Immersion into a Scientific Community of Practice

Stephen R. Hale

Eleanor D. Abrams

Karen Graham

Barrett N. Rock

Paper 4: Impact of Undergraduate Science Course Reform on Student Outcomes

Dennis W. Sunal

Cynthia Sunal

Cheryl L. Mason

Dean A. Zollman

Corinne Lardy

Erika Steele

Strand 7: Symposium: Introducing Coteaching as an Important Element of Science Teacher Education

Room: Kent B

Presider: Colette Murphy

Colette Murphy
Jennifer Gallo-Fox
Karen Carlisle
Kathryn Scantlebury
Kenneth G. Tobin
Sonya Martin

Strand 8: Symposium: Beginning/Newly Qualified Science Teachers: Guiding This Emerging Domain

Room: Dover B

Presider: Julie Luft

Julie Bianchini
Barbara A. Crawford
Betsy Davis
Julie Luft
Mark Olson
John Tillotson

Strand 8: Coordinator Organized Paper Set: Praxis and Views of Inquiry Teaching

Room: Kent C

Presider: Kathy Roth

Paper 1: Improving Science Through Authentic Inquiry

Nikki L. Hanegan
C. R. Nelson

Paper 2: Preparing Elementary School Teachers to Integrate Inquiry Science Instruction and Language Development for English Language Learners

Trish Stoddart
Sara E. Tolbert

Paper 3: Lesson Study in Elementary School Science: Steps to Investigative Culture

Martha H. Galganski
Tommie Y. Turner

Paper 4: Infusing Inquiry Teaching into Classroom Practice: A Junior High School Science Teacher's Professional Development Experience

Jun-Yi Chen
Huey-Por Chang
Chorng-Jee Guo
Wen-Yu Chang

Strand 9: Coordinator Organized Paper Set: Reflective Practice and Science Teacher Education I

Room: Laurel B

Presider: Jerine Pegg

Paper 1: Engaging in Socioscientific Issues (SSI) Instruction: A Unique Resource for Science Teacher Reflection and Learning

Robert M. Danielowich

Paper 2: Attitudes and Behaviors of Teachers Exposed to Action Research

Marianne B. Barnes
Lehman W. Barnes
Jerry Everhart

Paper 3: Professional Development: The Role of Principals in Supporting Action Research

Isha DeCoito
Erminia Pedretti
Derek Hodson
Maurice DiGiuseppe
Larry Bencze
Lisa Serebrin

Strand 10: Coordinator Organized Paper Set: Curriculum Implementation III

Room: Essex C

Presider: Jeanne R. Century

Paper 1: Competing Horizons: Biology Instruction and No Child Left Behind

Isaak Aronson

Paper 2: Comparison of Curricular Emphasis on Inquiry and NAEP Science Scores

John Murdock

Paper 3: Scaling-Up a Middle School Motion and Forces Unit in a Large, Diverse School District: Results and Implications of a Quasi-Experiment

William A. Watson
Curtis Pike
Sharon J. Lynch
Robert J. Ochsendorf

Paper 4: Alignment Between the Physics Content Standard and Standardized Test: A Comparison Among US-NY, Singapore, and China-Jiangsu

Xiufeng Liu
BaoHui Zhang
Ling L. Liang
Gavin Fulmer
Beaumie Kim

Strand 11: Coordinator Organized Paper Set: Investigating Culture and Learning

Room: Laurel A

Presider: Jon Saderholm

Paper 1: Culturally-Sensitive Pedagogy in an Elementary Science Classroom: A Case Study of a Hmong Elementary Teacher

Bhaskar Upadhyay

Paper 2: Notes on Making STEM (Science, Technology, Engineering and Mathematics) Education a Culturally Transformative Tool for African Americans

Jomo Mutege

LaTasha R. Thompson

Julius Davis

Paper 3: "It's Asking Me Like As If I Were the Mother...": Examining How Students From Different Cultural Groups Interpret Test Items

Min Li

Guillermo Solano-Flores

Melissa Kwon

Shinping Tsai

Strand 13: Coordinator Organized Paper Set: Teachers' Views (or Understandings) of the Nature of Science

Room: Kent A

Presider: Mike U. Smith

Paper 1: Exploring the Influence of an Argumentation-Based Science Content Course on Preservice Elementary Teachers' Views of Nature of Science

Christine V. McDonald

Paper 2: What 'Ideas-About-Science' Should Be Taught in School Science? A Chemistry Teachers' Perspective

Mansoor Niaz

Paper 3: Experienced Science Teachers' Talks on Teaching SSI: Exploration of Teachers' Personal Practical Knowledge

Hyunju Lee

Hyunsook Chang

Paper 4: Linking Progressive Development of Teachers' Understandings of Nature of Science and Scientific Inquiry with Progressive Development of Instructional Ability

Norman G. Lederman

Judith S. Lederman

Kevin White

Strand 14: New Poster Symposium: Learning Progressions for Environmental Science Literacy (Cross-Listed in Strand 1)

Room: Grand Ballroom Salon II

Presider: Julie Lambert

Paper 1: Comparing Palestinian and American Students' Accounts of Water in Environmental Systems

Hasan Abdel-Kareem

Charles W. Anderson

Paper 2: Developing a Learning Progression for Energy in Environmental Systems

Hui Jin

Charles W. Anderson

Paper 3: Developing a K-12 Learning Progression for Carbon Cycling in Socio-Ecological Systems

Jing Chen

Lindsey Mohan

Charles W. Anderson

Paper 4: Developing a Learning Progression for Environmental Science Citizenship

Blakely K. Tsurusaki

Beth A. Covitt

Edna Tan

Charles W. Anderson

Paper 5: Developing Progress Variables for the Carbon Cycle

Karen Draney

Jinnie Choi

Yong-Sang Lee

Mark Wilson

Paper 6: Learning Progressions for Environmental Science Literacy

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Richard A. Duschl

Kristin Gunkel

Blakely K. Tsurusaki

Karen Draney

Paper 7: The Development of a K-12 Learning Progression for Biodiversity in Environmental Systems

Josie Zesaguli

Blakely K. Tsurusaki

Brook Wilke

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Paper 8: A Learning Progression for Processes that Move Water through Socio-Ecological Systems

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Charles W. Anderson
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Paper 9: A Learning Progression for Processes that Alter Water Quality in Socio-Ecological Systems

Beth A. Covitt
Kristin Gunkel
Hasan Abdel-Kareem
Charles W. Anderson
Rebecca Dudek

Session 7

4:45PM – 6:15PM

Research Committee Sponsored Workshop: How Far We Have Come After Two Decades of Progress: A Re-Visitation to the Challenge of "Science For All Americans."

Room: Dover A

Presider: Kenneth G. Tobin

Kenneth G. Tobin
Alberto Rodriguez
Deborah Tippins
Wolff-Michael Roth
Cathy Zozakiewicz
Nancy Brickhouse

Strand 1: Coordinator Organized Paper Set: Examining Beliefs and Understandings in Science

Room: Essex B

Presider: Claudia von Aufschnaiter

Paper 1: A Learning Progression for Understanding the Context, Cyclic Nature, and Timescales Associated With the Rock Cycle

Molly L. Yunker

Paper 2: Learning to Think about Gravity I: From Aristotle to Newton

Claudine I. Kavanagh
Esther L. Zirbel
Cary Sneider

Paper 3: Using Formative Assessment to Promote Conceptual Change

Yue Yin
Miki K. Tomita
Richard J. Shavelson

Paper 4: Effectiveness of a Learning Pathway Based on Model Construction and Criticism Theory

Maria C. Nunez-Oviedo
Rosa Catalan
Juan Godoy
Sergio Rojas

Strand 2: Symposium: Using Evidence: Students' Abilities and Needed Support

Room: Laurel D

Carrie Beyer
Barbara Hug
Lisa Kenyon
Leema Kuhn
Katherine McNeill
Ted Willard

Strand 2: Coordinator Organized Paper Set: Learning from Shared Experiences and Discourse in Science Education

Room: Grand Ballroom Salon IV

Presider: Obed Norman

Paper 1: Making Meaning of Shared Experiences Using Cogenerative Dialogues

Gillian U. Bayne

Paper 2: Effects of Computer Simulation on English Language Learners' Science Learning

Kihyun Ryoo

Paper 3: Orchestrating Productive Discussions: A Study of Dialogic Exchange in Science Classrooms

Lindsey Mohan

Paper 4: Exploring Students' Dialogue with Evolution and the Influence of their Questions in the Teacher's Discourse

Eduardo F. Mortimer
Marina Lima-Tavares
Maria Pilar
Jimenez Aleixandre

Strand 3: Coordinator Organized Paper Set: Professional Development of Inservice Primary Teachers

Room: Grand Ballroom Salon 1

Presider: Mark Guy

Paper 1: The Effects of a Science Teaching Intervention on Elementary Teachers' Beliefs About Science Teaching

Cynthia Lundeen
Diana C. Rice
Sibel Kaya

Paper 2: Pedagogical Content Knowledge for Teaching the Nature of Science: A Study of Teachers Effective in Impacting Students' Views

Deborah Hanuscin
Michele H. Lee
Valarie L. Akerson

Paper 3: Doing the Work of Reform: Teachers' Narratives of Hard-Won Accomplishments

Julie Haun-Frank
Sue C. Kimmel
Heidi Carlone
Margaret Vaughn

Paper 4: Getting the Big Picture: The Impact of a Summer Workshop on Teachers' Views of Scientific Inquiry, Nature of Science and Classroom Interaction

Khemmawadee Pongsanon
Alan Oliveira
Valarie L. Akerson
Abdulkadir Genel
Huseyin Colak

Strand 4: Symposium: Popularity and Relevance of Science Education and Scientific Literacy - The PARSEL Project in Europe

Room: Dover C

Presider: Wolfgang K. Graeber

Wolfgang K. Graeber
Claus Bolte
Jack Holbrook
Avi Hofstein
Martin Lindner
Jan Alexis Nielsen
Rachel Mamlock-Naaman

Strand 4: Coordinator Organized Paper Set: Teacher/Teaching Comparisons

Room: Kent A

Presider: Saouma B. BouJaoude

Paper 1: A Study of the Science Inquiry Learning Environments Created by National Board Certified Teachers

Jon Saderholm

Paper 2: Describing and Comparing Mathematics and Science Teaching: Subject Culture Under the Microscope

Linda M. Darby

Paper 3: Understanding First-Time Enactment of Environmental Decision-Making: Lessons for the Support of Teachers and Design of Professional Development

Richard J. Vath
Anna Switzer

Paper 4: Experienced and Novice Teachers' Concepts of Scale

Gail Jones
Thomas R. Tretter
Amy Taylor
Tom Oppewal

Strand 5: Coordinator Organized Paper Set: Conceptual Reasoning and Development

Room: Essex A

Presider: Kristy L. Halverson

Paper 1: Analysis of Learning Progressions Using Classification Tasks: Application to the Intermolecular Forces Concept

Marilyne Stains
Vicente Talanquer

Paper 2: The Metacognition of College Science Students

Janice M. Bonner
William Holliday

Paper 3: The Impact of Undergraduate Research Experiences on the Graduate Student /Postdoctoral Fellow Mentor

Deborah Johnson
Kathryn A. Smith
Erin L. Dolan

Paper 4: Enhancing Undergraduate Students' Nano-literacy Through an Instructional Module

Denise L. Drane
Su Swarat
Eun Jung Park
Kathy Chen
Thomas Mason

Strand 6: Coordinator Organized Paper Set: Tracking Conceptual Change in Informal Science

Room: Laurel C

Presider: Lynn D. Dierking

Paper 1: Changes in Children's Conceptions of Nature Following a Residential Environmental Education Experience

Bryan M. Rebar

Paper 2: Uncovering Visitor Conceptions of Fossils and the Fossil Record

James F. Kisiel
Jeanine Ancelet

Paper 3: Visitors' Geological Conceptions and Meaning Making at Petrified Forest National Park

Nievita F. Bueno Watts
Steven Semken
Monica Pineda
Cheryl Alvarado

Paper 4: Science Learning in a Leisure Setting

John Falk
Martin Storksdieck

Strand 7: Coordinator Organized Paper Set: Examining Teacher Education/Certification Programs I

Room: Kent B

Presider: Robert D. Sherwood

Paper 1: Hybrid Coursework in Teacher Preparation: Teacher Education's Structural Response to Increased Demand for Highly Qualified Science Teachers

Brian C. Baldwin

Paper 2: Factors Underlying Decisions to Pursue Alternative Routes to Secondary Science Certification

Fouad Abd-El-Khalick

Paper 3: Recent Policy Documents with Implications for STEM Teacher Education and Research

Robert D. Sherwood

Paper 4: Landscape Baseline Data in a Large Scale Science Teacher Preparation Model

J Randy McGinnis
Gili Marbach-Ad
Scott Jackson Dantley
Benson Spencer
Amy Dai
Rebecca Pease

Strand 8: Coordinator Organized Paper Set: Aspects of Learning in Professional Learning Communities

Room: Dover B

Presider: Kate Popejoy

Paper 1: An Analytical and Interpretive Framework for Examining Social Interactions in Professional Learning Communities

Hui Jin
Gail Richmond

Paper 2: Conditions for Collaborative Knowledge Construction of Inservice Science Teachers in Problem-Based Professional Development

Meilan Zhang
Mary Lundeberg
Tom J. McConnell
Matthew J. Koehler
Jan Eberhardt

Paper 3: Inquiry into Practice: How Teachers Learn to Engage Their Students in Model-Based Reasoning

Cynthia Passmore
Connie Hvidsten
Lin Xiang
Arthur Beauchamp
Wendell Potter
Hedman Rich

Paper 4: Teachers' Collaborative Inquiry: Making Sense of Classroom-Based Data

Tamara D. H. Nelson
Angie Foster
David Slavit
Anne Kennedy
Wendi Laurence

Strand 8: Related Paper Set: Studies on Teacher Professional Development

Room: Kent C

Presider: Silke Mikelskis-Seifert

Paper 1: Can a Learning-Process Oriented Training of Physics Teachers Using Video-Feedback Alter Teachers' Subjective Beliefs?

Rainer Wackermann
Georg Trendel
Hans E. Fischer

Paper 2: Studies on Video-Based Physics Teacher Professional Development

Claudia Kastens
Reinders Duit
Manfred Lehrke

Paper 3: Physics Teacher Professional Development in the Program 'Physics in Context'

Silke Mikelskis-Seifert
Reinders Duit

Paper 4: Do Teacher In-Service Training Courses Have an Impact on Teachers' Conceptions of Teaching and Learning and on Students' Understanding in Primary Science?

Thilo Kleickmann
Kornelia Miller

Strand 10: Coordinator Organized Paper Set: Curriculum Reform

Room: Essex C

Presider: Brian J. Reiser

Paper 1: Teachers' Perceived Meanings of Their New Curriculum Reforms: Lessons from One School District in South Africa

Bongani D. Bantwini

Paper 2: Enactment Indicators of Reform Outcomes in Science Textbooks: An Holistic Look

Ajda Kahveci

Paper 3: Under Cultural Conflict: Change of the Teacher Discourses About Taiwanese Curriculum Reform

Yun-Ping Ge

Huey-Por Chang

Kuo-Hua Wang

Paper 4: Characterizations of Inquiry: Science Teachers' Descriptions of Curriculum Reform

Ann Rivet

Mary Petzoldt

Jenny Ingber

Jessica F. Riccio

Strand 11: Symposium: Pathways to New Possibilities: Creolized Science, Solidarity, and Hybrid Identities

Room: Laurel A

Presider: Rowhea Elmesky

Rowhea Elmesky

Gale Seiler

Christopher Emdin

Lisa Singletary

Wesley B. Pitts

Strand 12: Coordinator Organized Paper Set: Technologies as Tools for Teaching and Learning

Room: Laurel B

Presider: Susan A. Yoon

Paper 1: Instructional Strategy Enhancing Learners' Sense Toward Online Classroom Community

Ruey S. Shieh

Paper 2: Educational Software Evaluation Scale: The Study of Validity and Reliability

Yilmaz Kara

Paper 3: Students Becoming Information Technology Fluent: Technology-Embedded Environmental Research Studies

Jazlin Ebenezer

Osman Kaya

Dionysius Gnanakkan

Paper 4: A Collaborative Support Tool for Problem-Solving Ability: Idea Storming Cube

Chun-Chieh Huang

Chun-Yen Chang

Tsai-Yen Li

Hao-Chuan Wang

Strand 14: Symposium: Intersection of the Influence of Schooling, Culture, and Nature on the Motivation of Hawaiian and Taiwanese Indigenous Children

Room: Grand Ballroom Salon II

Presider: Joel Mintzes

Paper 1: The Intersection of The Influences of Schooling, Culture And Nature on The Motivation of Hawaiian and Taiwanese Indigenous Children

Eleanor D. Abrams

Chuing-Fen Yen

Larry Yore

Pauline W. Chinn

Huei Lee

Erica Blatt

Chorgn-Jee Guo

Evening Events**6:30PM – 7:30PM****Membership and Election Committee-****Sponsored Graduate Student Forum**

Room: Dover C

6:30PM – 8:30PM**Journal of Research in Science Teaching Editorial Board Meeting/Dinner**

(Board meeting open to all, Dinner by invitation only)

Room: Grand Ballroom IX

A decorative graphic consisting of a series of concentric, curved lines that form a semi-circular shape, resembling a stylized wave or a fan. The lines are gray and have a slight gradient, giving it a three-dimensional appearance.

Tuesday, April 1

NARST Committee Meetings

7:00AM – 8:15AM

NARST Outstanding Paper Award Selection Committee Meeting

Room: Essex A

Equity and Ethics Committee Meeting

Room: Laurel A

External Policy and Relations Committee Meeting

Room: Laurel B

International Committee Meeting

Room: Essex B

Membership and Election Committee Meeting

Room: Laurel C

Program Committee Meeting

Room: Laurel D

Publications Advisory Committee Meeting

Room: Kent A

Research Committee Meeting

Room: Kent B

Ad hoc: History of Science Education Committee Meeting

Room: Kent C

Outstanding Doctoral Research Award Selection Committee

Room: Essex C

JRST Award Selection Committee

Room: Dover A

Early Career Research Award Selection Committee

Room: Dover B

Distinguished Contributions in Research Award Selection Committee

Room: Dover C

Ad Hoc: Practitioner Research Committee Business Meeting

Room: Grand Ballroom Salon I

Session 8

8:30AM – 10AM

Publications Advisory Committee Sponsored Session: Publication in the Journal of Research in Science Teaching

Room: Dover A

Presider: Barbara A. Crawford

J. Randy McGinnis

Angelo Collins

External Policy and Relations Committee Sponsored Session: Taking Action--What Can NARST Members Do to Inform Policymakers and the Public-At-Large?

Room: Grand Ballroom Salon IV

Presider: Catherine Milne

Jodi Peterson

Lynn A. Bryan

Strand 1: Coordinator Organized Paper Set: Inquiry and Design

Room: Essex B

Presider: Gregory P. Thomas

Paper 1: Utilizing Contrasting Cases to Target Science Reasoning and Content in a Design-for-Science Unit

Eli M. Silk

Christian D. Schunn

Paper 2: Fifth Grade Students' Understandings About Inquiry and Doing Inquiry

Eunkyung Ko

Norman G. Lederman

Paper 3: Skills and Levels of Students' Inquiry Competence in Lower Secondary Biology Education (Grade 5-10)

Andrea Moeller

Christiane Grube

Juergen Mayer

Paper 4: A Cross-Analysis for High-School Students' Personal Epistemology and Understanding About Inquiry

Fang-Ying Yang

Ying-Shao Hsu

Meng-Jung Tsai

Strand 2: Symposium: Reading Scientific Texts: Adapting Primary Literature for Promoting Scientific Literacy

Room: Laurel D

Presider: Stephen Ritchie

Linda M. Phillips

Anat Yarden

Hedda Falk

Stephen P. Norris

Maria Pilar Jimenez Aleixandre

Danielle J. Ford

Strand 3: Related Paper Set: Preservice, Beginning, and Inservice Elementary Teachers: Issue Related to Effective Elementary Science Teaching

Room: Grand Ballroom Salon 1

Presider: Katherine McNeill

Paper 1: A Comparison of Field and University Based Science Methods Courses' Impact on Preservice Teacher's View of How Students Learn Science

Anne P. Gatling
Katherine McNeill
Dean Martin
Michael Barnett

Paper 2: Classroom Inquiry Style and Its Influence on Pre-service Elementary Teachers' Science Teaching Practice

Annmarie R. Ward
Carla Zembal-Saul

Paper 3: Beginning Elementary Teachers' Learning to Use Questions and Questioning in Inquiry-Oriented Science Teaching: A Longitudinal Study

Cory T. Forbes
Elizabeth Davis

Paper 4: A Professional Development Program for In-Service Elementary Teachers: Supporting Curriculum Planning and Enactment Grounded in the Psychological Tools of Science

Wendy M. Sink
Jennifer Cartier

Strand 4: Symposium: Hominid Evolution: Theory, Facts, and 'Tales' from the Field

Room: Dover C

Presider: Norman F. Thomson

Norman F. Thomson
Jennifer Adams
Sam Odell
Seri Chapman
David Jackson
Jacque Magner

Strand 4: Coordinator Organized Paper Set: Teachers' Beliefs and Interactions

Room: Kent A

Presider: SueAnn I. Bottoms

Paper 1: The Influence of Beliefs, Knowledge and Goals on the Implementation of Literacy Strategies in the Science Classroom

Kirsten K. Mawyer
Daniel C. Edelson

Paper 2: The Analysis of Instructional Variations Among Chemistry Teachers

Soonhye Park
J. Steve Oliver

Paper 3: Teachers' Pedagogical Beliefs About SSI and Scientific Literacy in Israel

Lea Segal
Dana L. Zeidler
Ariel Cohen

Paper 4: Content Knowledge for Teaching as Reflected in Teacher-Student Interactions: Two Video Case Analyses

Alicia C. Alonzo
Mareike Kobarg
Tina Seidel

Strand 5: Coordinator Organized Paper Set: Methods of Earth Science Instruction

Room: Essex A

Presider: Kate Popejoy

Paper 1: Earth Science Teachers' Perceptions of Autonomous Informal Education Assignments in a Nationwide Online Paleontology Course

Renee M. Clary
James H. Wandersee

Paper 2: Using Geologic Time Inquiry-Based Activities to Enhance Student Learning in the Introductory Geoscience Labs

Iris M. Totten
Mo Morse

Paper 3: Geologic Problem Solving in the Field: Insights into Student Problem Solving Strategies Through Analysis of Field Navigation

Eric M. Riggs
Russell Balliet
Christopher C. Lieder

Paper 4: Should "Proof" and "Truth" Be Targeted First? Evidence for Addressing Some Nature of Science Concepts and Misconceptions Earlier Than Others

Joanne K. Olson
Michael P. Clough
David Vanderlinden

Strand 6: Coordinator Organized Paper Set: Out of School Contexts

Room: Laurel C

Presider: David Anderson

Paper 1: Scientific Literacy: College Students' Evaluations of Media Reports

Connie A. Korpan

Paper 2: A Study of Sixth Graders' Creativity and Problem-solving Ability Through Othello Games

Wanchu Huang
Huei-Huei Lin

Paper 3: A Link between Science and Life: An Evaluation of Everyday Science Class

Mijung Kim
Heesook Yoon
Youngrae Ji
Jinwoong Song

Paper 4: SPARK! Igniting Student Interest in STEM Through Engineering Design

Jennifer Chidsey Pizzo
Rashmi Kumar
Wendy Green
Susan A. Yoon

Strand 7: Coordinator Organized Paper Set: Preservice Teachers' Problems of Practice and Rethinking Teacher Education Approaches

Room: Kent B

Presider: Steven F. Tuckey

Paper 1: Enacting Systems Thinking in Science Education

Anna Lewis

Paper 2: Exploration of Korean Preservice Elementary Teachers' Science Teaching-Anxiety and Science Teaching-Effectivity

Sung-Youn Choi
Sung-Won Kim

Paper 3: Framing Future Discussions and Research on Science Literacy

Steven F. Tuckey
Charles Anderson
Kelly M. Merritt
Hosun Kang
Mark Conley

Paper 4: Understanding Science Teacher Candidates' Views of Problems of Practice: Scientific Literacy and Students

Hosun Kang
Charles W. Anderson
Steven F. Tuckey
Kelly M. Merritt
Mark Conley

Strand 8: Coordinator Organized Paper Set: From Learning to Teaching Science

Room: Kent C

Presider: Kevin Carr

Paper 1: Capitalizing on Teacher Expertise: Contemplating Transfer From Professional Development to the Classroom Through Effective Use of Pedagogical Contexts

Andrea Gay

Paper 2: From Learning Science to Teaching Science: What Transfers?

Danielle B. Harlow

Paper 3: Professional Development in Practice

Victoria M. Deneroff

Paper 4: Do Middle School Teachers Integrate Content They Learn in a Physical Science Distance Learning Course into Their Instruction?

Rebecca McNall Krall
Joe P. Straley
Sally A. Shafer
Kelly D. Bradley
Jessica D. Cunningham
Jeffrey L. Osborn

Strand 8: Symposium: Exploring the First Year of Teaching in Secondary Science Classrooms

Room: Dover B

Presider: Gillian H. Roehrig

Julie Luft
Gillian H. Roehrig
Jennifer Neakrase
Jonah Firestone
Allison Kirchhoff
Selcen Guzey
Younkyeong Nam
Ann Kern
Ira Materassi
Krista Adams
Eun Bang
Mary Sande

Strand 10: Coordinator Organized Paper Set: Assessment Development I

Room: Essex C

Presider: George DeBoer

Paper 1: Students' Competence of Argumentation

Nicola Mittelsten Scheid
Corinna Hößle

Paper 2: Using Concept Cartoons as a Formative Assessment and Learning Tool in Science

Christine Chin
Lay-Yen Teou

Paper 3: The Effects of Portfolio Assessment on Student Outcomes in Chemistry

Jeffrey S. Carver
William J.F. Hunter

Strand 11: Symposium: Perspectives of Scholar Activism, Pragmatism, and Orchestration in Science Education

Room: Laurel A

Presider: Adam Johnston

Adam Johnston
John Settlage
David Moss
Heidi Carlone

Strand 12: Coordinator Organized Paper Set: Learning with Technologies

Room: Laurel B

Presider: Yilmaz Kara

Paper 1: Integrating Physics and Math Through Microcomputer-Based Labs (MBL): Effects on Discourse Type and Quality and Mathematization

Saouma B. BouJaoude
Murad E. Jurdak

Paper 2: The Connected Classroom: Physical Science Case Studies

Karen E. Irving
Vehbi A. Sanalan
Melissa L. Shirley

Paper 3: Unraveling the Influence of Haptic Feedback on Students' Learning about Levers

Eric N. Wiebe
M. Gail Jones
James Minogue
Jennifer Cowley
Denise Krebs

Strand 14: Coordinator Organized Paper Set: Environmental Education in Elementary School Settings

Room: Grand Ballroom Salon 11

Presider: Rita Anne Hagevik

Paper 1: An Urban Elementary Teacher's Experience Surrounding Her Students' Participation in an Outdoor Environmental Science Field Trip

Peggy L. Preusch

Paper 2: Back in the Classroom: Teacher Influence on Students' Environmental Understandings, Perceptions, and Actions Following an Earth Education Program

Lisa Felix
Bruce Johnson

Paper 3: A Case Study of NatureWatch within an Elementary School: Schools, Teachers, Students, and Community Based Monitoring (CBM)

Douglas Karrow
Xavier Fazio

Paper 4: Examining Elementary Students' Understanding of Farming and Food Growing Related Issues

Oksana Bartosh
Jolie Mayer-Smigh
Linda Peterat

Break

10:00AM – 10:30AM

Plenary Session 2

10:30AM – 11:45AM

Room: Grand Ballroom V & VI

Program Committee Sponsored

Plenary 2: Peter Fensham – Keynote Speaker

Science Education Research and Science Education Policy: A Too Often Overlooked Link

Presider: Charlene M. Czerniak

Awards Luncheon

Room: Grand Ballroom VII & VIII

12:00PM – 1:45PM

Session 9

2:00PM – 3:30PM

International Committee Sponsored Session: Reforms in Science Education in Different Countries

Room: Dover A

Presider: Mei-Hung Chiu

David Treagust
Uri Zoller
Christine Chin
Avi Hofstein
Gilberto Alfaro-Varela

Strand 1: Related Paper Set: Effect of Model-Based Physics Instruction on the Development of Problem Solving and Metacognitive Strategies

Room: Essex B

Presider: Esther L. Zirbel

Paper 1: The Effect of Model-based Physics Instruction on the Development of Problem Solving and Metacognitive Strategies

Kathy Malone

Paper 2: The Impact of a Modeling Based Ninth Grade Physics Curriculum on Scientific Reasoning and Mathematics Concepts

Anita Schuchardt

Kathy Malone

Bill Diehl

Kamille Harless

Dudley Parr

Robert McGinnis

Paper 3: How Mathematical Literacy Impacts Inquiry in Physics

Doug Vallette

Nanette Dietrich

Paper 4: Adapting to Modeling Instruction over Time

Jeff Saul

Lloyd Kramer

D. Jones

Eric Brewe

G. O. Brian

Paper 5: Framing Student Discourse for Optimal Learning in Physics

Colleen Megowan-Romanowicz

Strand 2: Coordinator Organized Paper Set: Building Successful Relationships in Science Classrooms and Laboratories

Room: Laurel D

Presider: Erin M. Furtak

Paper 1: A Comparative Science Study: Uncertainty in the Laboratory and in the Science Education Classroom

Susan A. Kirch

Paper 2: Conflict in Cooperative Learning Groups in an Elementary Science Methods Course

Scott B. Watson

Glenna Dunn

Paper 3: A Comparison of Science and Mathematics Teachers' Interpersonal Behaviour With Teachers of Other Subjects

Perry den Brok

Ruurd Taconis

Darrell L. Fisher

Paper 4: Implementation of Objectives for Laboratory Work in Secondary School Science

Per Högström

Christina Ottander

Sylvia Benckert

Strand 2: Related Paper Set: Learning Science in Authentic Settings

Room: Grand Ballroom Salon IV

Presider: Penny J. Gilmer

Paper 1: Learning Science in Authentic Settings: Moving Students to the Inner Circle

Barbara A. Crawford

Paper 2: The City as a Research Site: Using Inquiry with English Language Learning Students in an Urban Middle School to Investigate Ecological Concepts

Xenia Meyer

Barbara A. Crawford

Paper 3: Towards Independent and Critical Thinking: Learning about Evolutionary Concepts through Inquiry in a Rural High School

Robert Humphrey

Lynn Vaccaro

Barbara A. Crawford

Paper 4: Learning the Process and Nature of Science in the Context of Cutting-Edge Plant Biotechnology Research

Maya Patel

Deborah Trumbull

Elizabeth Fox

Barbara A. Crawford

Strand 3: Coordinator Organized Paper Set: Student Learning and Conceptions in Primary Science

Room: Grand Ballroom Salon 1

Presider: Shireen Desouza

Paper 1: Integrating Science and Literacy: Does One Size Fit All?

Leigh K. Smith

Kendra M. Hall

Janet Losser

Paper 2: The Impact of an Integrated Science Reading Intervention on Elementary Children's Misconceptions Regarding Slow Geomorphological Changes Caused by Water

Patricia Martinez
Brenda Bannan-Ritland
Anastasia Kitsantas
John Baek

Paper 3: Promoting Children's Reasoned Argumentation on a Complex Socioscientific Issue

May Jadallah
Brian Miller
Richard C. Anderson
Kim Nguyen-Jahiel

Paper 4: Effects of the Implementation of Science Writing Heuristic on Students' Understanding of Electricity Unit in 6th Grade Setting in Turkey

Esra Kabatas
Murat Gunel
Erdogan Buyukkasap
Mustafa Uzoglu
Brian Hand

Strand 4: Symposium: Teacher Learning of Technology-Enhanced Formative Assessment

Room: Dover C

Presider: Ian D. Beatty

Ian D. Beatty
Allan P. Feldman
Hyunju Lee
Karen St. Cyr
Robby Harris

Strand 5: Coordinator Organized Paper Set: College Science Faculty Development

Room: Essex A

Presider: Vicente Talanquer

Paper 1: Identity Conflicts in College Science Teaching

Robert J. Ceglie
John Settlage

Paper 2: Utilizing K-12 Science Education Partnerships to Develop Better Scientists: Integrating Pedagogy and Partnership Experiences into Graduate Science Training

Allison Busch
Kimberly D. Tanner

Paper 3: Drivers for Change in Faculty Members Thinking About Teaching

Erika Offerdahl
Lisa Elfring
Debra Tomanek

Paper 4: Exploring Scientific Research Disposition from the Perspective of Academic Professors

Roeland M. Van der Rijst
Jan H. van Driel
Jan W. Kijne
Nico Verloop

Strand 6: Coordinator Organized Paper Set: Seeing Science Learning in Wider Contexts

Room: Laurel C

Presider: Martin Storksdieck

Paper 1: Growing A Scientist: Scientists' Experiences, Relationships, and Identity Formation

Jennifer Forrester
Gail Jones

Paper 2: Designing Curricula to Bridge Informal and Formal Learning Environments

Jenny Ingber
Nicholas Stroud
Megan Roberts
Katherine Brown
Emily Noto

Paper 3: Student Learning in an Informal Setting: Rainforest Ecology in the Amazon

Enrique M. Pareja
Sandra K. Abell

Strand 7: Coordinator Organized Paper Set: Role of Clinical Field Experiences in Preservice Teachers' Development

Room: Kent B

Presider: Jacqueline Leonard

Paper 1: Cases Studies of Elementary Preservice Teachers' Science Efficacy and Inquiry-Based Practices in Urban Schools

Jacqueline Leonard
James E. Davis

Paper 2: Field Experiences of Elementary Preservice Teachers: Does the Involvement of the Science Methods Instructor Make a Difference in New Teacher Confidence?

Jacqueline T. McDonnough
Juanita Jo Matkins

Paper 3: One-to-One Field Experiences: How Do Child-Interactions Influence Elementary Preservice Teachers' Science Confidence and Content Knowledge?

Julie Thomas
Ratna Narayan

Paper 4: The Role of the Practicum Experience in Supporting Secondary Pre-Service Teachers' Implementing Inquiry Based Science

Xavier Fazio
Wayne Melville
Anthony Bartley

Strand 8: Coordinator Organized Paper Set: What Matters in PD? Teachers' Needs

Room: Kent C

Presider: Robert M. Danielowich

Paper 1: Understanding the Affordances of an Online Induction Program for Beginning Science Teachers

Joel D. Donna
Gillian Roehrig

Paper 2: What Misconceptions Do US Teachers Have About Lesson Study?

Andrew B. West
Mark Volkmann

Paper 3: Practice-Based Professional Development: Design Considerations for New and Experienced Users of Curriculum Materials

Heather Johnson
Kirsten K. Mawyer
Daniel C. Edelson

Strand 8: Symposium: Impact of Socioscientific Issues Research on Research, Policy and Practice

Room: Dover B

Presider: Troy D. Sadler

Dana L. Zeidler
Troy D. Sadler
Martina Nieswandt
Chin-Chung Tsai
Vaille M. Dawson
Grady J. Venville

Strand 9: Symposium: Preparing Policy Researchers in Science Education: A Model for Preparing Policy Researchers in Science Education – SERGE

Room: Laurel B

Presider: Jerine Pegg

Carol Stuessy
Dane Bozeman
Toni Hollas
Toni A. Ivey
Rasheedah Richardson
Sara Spikes
Thomas Stiles

Caroline Vasquez
Robert Wilson

Strand 10: Coordinator Organized Paper Set: Curriculum Analysis: Textbooks

Room: Essex C

Presider: Regina Toolin

Paper 1: Seeing the Wood for the Trees: An Analysis of Evolutionary Diagrams in Biology Textbooks

Kefyn M. Catley
Laura R. Novick

Paper 2: The Analysis of Diabetes Education in High School Biology Textbooks

Deanna M. Lankford
Lloyd H. Barrow

Paper 3: Effects the Representational Structures on Students' Nervous System Image Reading Comprehension

Wen-Gin Yang
De-Wei Feng
Jia-Cheng Ye

Paper 4: Balance of Scientific Literacy Themes in Zambian High School Chemistry Textbooks, Syllabus and Examinations

Frackson Mumba
Vivien M. Chabalengula
William J. F. Hunter

Strand 11: Symposium: Promoting New Directions in Science Education: Part 2, Conceptual Frameworks

Room: Laurel A

Presider: Felicia M. Moore

Felicia M. Moore
Magnia George
Eileen C. Parsons
Brian Williams
Jomo Mutegi
Bryan Anthony Brown

Strand 13: Coordinator Organized Paper Set: Methodology and Pedagogy in the History, Philosophy, and Sociology of Science

Room: Kent A

Presider: Valarie L. Akerson

Paper 1: Conceptualizing Scientific Explanations in Science Education: Methodological and Pedagogical Considerations

Deniz Peker

Paper 2: Utilizing Nature of Science as the Context of Doing Science

Byoung-Sug Kim
Norman G. Lederman

Paper 3: Scientific Argumentation and Teacher Expectations

Jeremy Peterson
Laura C. Price
Nikki L Hanegan

Paper 4: The Relationship Between Nature of Science and Argumentation

Rola Khishfe
Shannon Palouci
Todd Medintz

Strand 14: Coordinator Organized Paper Set: Environmental Education in Secondary School Settings

Room: Grand Ballroom Salon 11

Presider: Julie Lambert

Paper 1: The Interplay Between Teachers' and Students' Personal Values and the Development of Environmental Action Projects Within Two Middle School Classrooms

Kim E. Charnatz

Paper 2: Leveraging GIS Technology in Urban Schools to Visualize Impact of Urban Forests on Climate, Energy Use and Air Quality

Michael Barnett
Meredith E. Houle
Michelle Smith

Paper 3: Effects of Ethnicity and Gender on 6th Grade Students' Environmental Knowledge and Attitudes

Rachel M. Shelton
Sybil S. Kelley
William G. Becker

Break

3:30PM – 4:00PM

Session 10

4:00PM – 5:30PM

Ad hoc History of Science Education Committee Sponsored Session: Science Education Research Traditions in Europe: Shedding Light on Didactics

Room: Dover A

Presider: Fouad Abd-El-Khalick

Fouad Abd-El-Khalick
Saouma B. BouJaoude
Reinders Duit
Andre Tiberghien
Maria Pilar Jimenez Aleixandre
Justin Dillon

Strand 1: Coordinator Organized Paper Set: Inquiring into Understanding in the Physical Sciences

Room: Essex B

Presider: Adam Johnston

Paper 1: Research And Instruction-Based/Oriented Work (RAINBOW) for Conceptual Change in Science Learning – An Example of Students' Understanding of Gas Particles
Mei-Hung Chiu

Paper 2: Evolution of Students' Model-Building Practices

Valerie K. Otero
Danielle B. Harlow

Paper 3: Using Rasch Analysis and Classroom Observations to Examine High-Stakes Testing

Catherine Milne
Jimmy Ma

Paper 4: Exploring Variations in and Developing Typology for Undergraduate Students' Conception of "Size and Scale"

Eun Jung Park
Su Swarat
Greg Light
Denise Drane

Strand 2: Coordinator Organized Paper Set: Exploring Encounters in Science Education

Room: Grand Ballroom Salon IV

Presider: Mark James

Paper 1: Don't Say Yuk, Say 'Hum': The Role of Interjections in Students' Engagement During Science Fieldtrips

Bruno D. O. Jayme

Paper 2: Synchronizing Face-to-Face Encounters to Produce Success in Urban Science

Kenneth G. Tobin

Paper 3: Potentialities Beyond Deficit Perspectives: Improving Solidarity and Science Fluency During Chemistry Laboratory Activities in Urban High Schools

Wesley B. Pitts

Paper 4: A Cross-Cultural Comparison in the Use of VAST-Models by Thai and United States High School Students for Learning Atomic Structure

Panwilai Chomchid
Norman F. Thomson

Paper 5: Teacher/Student Questioning Interactions

Kelley Friden
Sara E. Morrison
Nikki L. Hanegan

Strand 2: Related Paper Set: Children's Encounters with Science and Literacy in Urban Classrooms: Collective Landscapes and Individual Engagement

Room: Laurel D

Presider: Chun-Yen Chang

Paper 1: Integrated Science Literacy Enactments: Spaces for Production of Scientific Knowledge

Maria Varelas
Christine C. Pappas
Angela Calabrese-Barton

Paper 2: Distinctive Interactions: Young Children's Language Acts in Dialogic Curriculum Genres

Eli Tucker-Raymond
Christine C. Pappas
Maria Varelas
Ibett Ortiz

Paper 3: How Urban Classes Develop, Transform, and Appropriately Scientific Ideas: The Ebb and Flow of Concept Development

Justine M. Kane
Maria Varelas
Christine C. Pappas
Jennifer Hanks

Paper 4: Intertextuality and Gender in Primary-Grade, Urban Classrooms: Girls Making Sense in Science Read-Alouds

Amy Arsenault
Maria Varelas
Christine C. Pappas
Anne Barry
Neveen Keblawe-Shamah

Strand 4: Coordinator Organized Paper Set: Inquiring into Inquiry

Room: Dover C

Presider: Angela M. Kelly

Paper 1: Teacher Commitments and Resources to Facilitating Evidence-Based Reasoning in an Inquiry-Based Curriculum

David Grueber

Paper 2: Investigating the Effectiveness of Inquiry-Based Versus Traditional Science Teaching Methods in Middle and High School Laboratory Settings

Margaret R. Blanchard

Sherry A. Southerland
Leonard A. Annetta

Paper 3: An International, Systematic Investigation of the Relative Effects of Inquiry and Direct Instruction: A Replication Study

Judith S. Lederman
Norman G. Lederman
Per-Olof Wickman

Paper 4: Force and Motion: Problem Solving Strategies

Lori L. Petty
David Lamp
Ratna Narayan
Sandi Cooper
Julie Thomas
William Lan
Mary Tallent Runnels

Strand 4: Related Paper Set: Students Argumentative Discourse in a Seismology Inquiry Unit

Room: Kent A

Presider: Scott P. McDonald

Paper 1: Student Argumentative Discourse in a Seismology Inquiry Unit

Steven C. Kerlin
Scott P. McDonald
Gregory J. Kelly

Paper 2: An Investigation of the 'Dead End' Participant Structure – Examining How Student Cognitive Factors and Teacher Beliefs Impact Its Contribution to Progressive Discourse

Brett A. Criswell
Scott P. McDonald

Paper 3: The Development of Professional Identity through Participation in a Community of Practice

Oliver Dreon Jr.
Scott P. McDonald

Paper 4: Understanding Professional Vision in Inquiry Science Teaching

Scott P. McDonald

Strand 5: Using the In-Vivo Method to Expose Inquiry-Based Challenges for University Science Students

Room: Essex A

Presider: Cheryl Berg

Paper 1: Challenges to Graduate Student Research in the Historical Based Sciences

Jeff Dodick
Inbal Flash-Gvili

Paper 2: The Doctoral Experiences of Students and Their Advisors in Chemistry and Physics: A Qualitative Examination

Robert H. Tai
Geoff Potvin
John Loehr
Scott S. Lloyd

Paper 3: The Effect of Disciplinary Identity on Interdisciplinary Learning During Scientific Group Meetings

Anat Yarden
Nir Esterman

Paper 4: What Can a Laboratory Study of Chemistry Tell Us About Learning?

Janet Bond-Robinson

Strand 7: Coordinator Organized Paper Set: Preservice Teachers' Learning and Growth Within Teacher Education Programs

Room: Kent B

Presider: Anita Roychoudhury

Paper 1: Intersection of Teacher and Student ZPDs: Instructional Implications

Anita Roychoudhury

Paper 2: Facets of Effective Science Learning Environment: Preservice Elementary Teachers' Observations of Their Clinical Experience in Korea and the U.S.

Do-Yong Park
Marilyn Morey
Myon U. Lee

Paper 3: Investigating Teacher Knowledge of Learners and Learning and Sequence of Science Instruction in an Alternative Certification Program

Patrick L. Brown
Sandra K. Abell
Patricia M. Friedrichsen

Paper 4: Dual Vision: A Method for Capturing the Learning Journey of Pre-Service Primary Teachers of Science

Christine J. Howitt
Grady J. Venville

Strand 8: Coordinator Organized Paper Set: Impacting Teacher Knowledge, Teaching Practice and Student Learning

Room: Kent C

Presider: Tamara Holmlund Nelson

Paper 1: Urban School Reform Enabled by Transformative Professional Development: Impact on Teacher Change and Student Learning of Science

Carla Johnson
Sherry Marx

Paper 2: Impacting Teacher Knowledge, Teacher Practice, and Student Achievement: The Role of Educative Curriculum Materials and Professional Development

Julie Gess-Newsome
Janet Carlsen Powell
Joseph Taylor
April Gardner

Paper 3: Preparing Teachers to Support Students in Conducting a Field-Based, Technology-Rich Scientific Investigation

Meredith E. Houle
Michael Barnett
Peter Piazza
Eric G. Strauss

Paper 4: Project-Based Science Curricula Impact Minority Students' Achievement, Attitudes, and Plans Via Teacher Knowledge and Enactment

David Kanter
Kimberly Tester
Jack Gallagher
Spyros Konstantopolous

Strand 10: Coordinator Organized Paper Set: Assessment Development II

Room: Essex C

Presider: Curtis Pike

Paper 1: An Analysis of Field Test Results for Assessment Items Aligned to the Topic of Atoms, Molecules, and States of Matter

Cari F. Herrmann Abell
George DeBoer

Paper 2: The Context Dependency of Students' Conceptions of Basic Optics Concepts Using a Two-Tier Multiple-Choice Diagnostic Instrument

Hye-Eun Chu
David Treagust
A. L. Chandrasegaran

Paper 3: Development, Implementation, and Evaluation of a New Assessment Instrument for Measuring Student Knowledge of Genetics and Natural Selection

Ross H. Nehm
Alicia Carassco
Mary Driscoll

Paper 4: Development of a Concept-Inventory-Based Test in Nanoscale Science and Engineering and Its Use at a Professional Development Institute

Alan K. Szeto
Lynn A. Bryan
Nicholas J. Giordano
George M. Bodner
Emily D. Wischow
Shanna R. Daly

Strand 11: Symposium: Sociocultural Studies and Issues Related to Students and Teachers: Believing, Caring, and Performing

Room: Laurel A

Presider: Mary M. Atwater

Mary M. Atwater
Tonjua B. Freeman
Georgia Hodges
Weiling Li
Rhonda Rackley
Regina Suriel

Strand 14: Coordinator Organized Paper Set: Scientific Understanding and Environmental Education

Room: Grand Ballroom Salon II

Presider: Julie Lambert

Paper 1: Facilitating Content Knowledge Through In-depth Examination of Environmental Issues

James T. McDonald

Paper 2: Environmental Educators' Conceptions of the Nature of Science and the Role of Science in Environmental Education

Teddie Phillipson-Mower

Paper 3: Decisions and Dilemmas: Using WTL Activities to Increase Ecological Literacy

Alison M. Wallace
Meena M. Balgopal

Paper 4: The Development and Implementation of a Modeling-Based Curriculum to Enhance Ecosystems' Understanding: A Design Experiment With Fifth Graders

Marios N. Papaevripidou
Constantinos Constantinou
Zacharias C. Zacharia

Evening Events

5:00PM – 6:00PM

Research in Science Education (RISE)

Editorial Board Meeting

Room: Laurel C

5:45PM – 6:45PM

Membership and Elections Committee-Sponsored New Researcher and Junior Faculty Early Career Discussion

Room: Dover C

Presider: Jim McDonald

Jim McDonald
Catherine M. Koehler

6:30PM

Equity Dinner (off site)

Please meet in the lobby at 6:30pm. All members of NARST are invited and encouraged to attend.

7:00PM – 9:00PM

Routledge/Taylor and Francis

Reception (by invitation only)

Room : TBD

8:00PM – 10:00PM

Social—FARSE

Room: Grand Ballroom Salon II



Wednesday, April 2

NARST Strand Meetings

7:00AM – 8:15AM

Strand 1 Meeting: Science Learning, Understanding and Conceptual Change

Room: Essex B

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

Room: Laurel D

Strand 3 Meeting: Science Teaching--Primary School (Grades preK-6): Characteristics and Strategies

Room: Grand Ballroom Salon1

Strand 4 Meeting: Science Teaching--Middle and High School (Grades 5-12): Characteristics and Strategies

Room: Kent A

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

Room: Essex A

Strand 6 Meeting: Science Learning in Informal Contexts

Room: Laurel C

Strand 7 Meeting: Pre-service Science Teacher Education

Room: Kent B

Strand 8 Meeting: In-service Science Teacher Education

Room: Kent C

Strand 9 Meeting: Reflective Practice

Room: Dover B

Strand 10 Meeting: Curriculum, Evaluation, and Assessment

Room: Essex C

Strand 11 Meeting: Cultural, Social, and Gender Issues

Room: Laurel A

Strand 12 Meeting: Educational Technology

Room: Laurel B

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

Room: Dover C

Strand 14 Meeting: Environmental Education

Room: Dover A

Session 11

8:30AM – 10:00AM

Equity and Ethics Committee Sponsored Session: Conceptual Frameworks for Research on Diversity in Science Education

Room: Dover A

Presider: Angela Calabrese Barton

Panel Discussants:

Angela Calabrese Barton

Bryan Brown

Pauline Chinn

Jomo Mutegi

Alberto Rodriguez

Strand 1: Coordinator Organized Paper Set: Learning Biological Concepts

Room: Essex B

Presider: Eric N. Wiebe

Paper 1: How Do Domain Specific Learning Stimuli Influence the Students' Self-Explanations While Learning With Worked-Out Examples in Biology?

Iris Mackensen-Friedrichs

Paper 2: Generating Knowledge in Genetics Through a Simulation of a Research in Genetics and Bioinformatics

Hadas Gelbart

Anat Yarden

Paper 3: Students Learn About Their Own Bodies as Part of Their Biological and Citizenship Deduction. How Do They Learn? What Do They Learn First? From Whom Do They Learn?

Ann W. Wright

Sue D. Tunnicliffe

Michael Reiss

Paper 4: Promoting Middle School Student's Understandings of Molecular Genetics

Ravit Golan Duncan

John Ruppert

Andrew Bausch

Hava B. Freidenreich

Strand 2: Coordinator Organized Paper Set: Reform and Practice in Science Education

Room: Laurel D

Presider: Lilian Pozzer-Ardenghi

Paper 1: What is Hindering Reform-Based Teaching: Cultural Constraints or Professional Limitations?

Mehmet Aydeniz

Paper 2: Primary Grade Writers of Scientific Discourse: Two Case Studies From Integrated Science/Literacy Instruction

Sheryl L. Honig

Paper 3: Recent Experimental Studies of Inquiry-Based Teaching: A Meta-Analysis and Review

Erin M. Furtak

Tina Seidel

Paper 4: Differences in High School Students' Perceptions of What Helps Them Learn Science: A Missing Piece in Decision-Making Regarding Practice and Reform

Eileen C. Parsons

Rhea Miles

Spike Petersen

Strand 2: Coordinator Organized Paper Set: Improving Science Achievement Using Technology and Other Innovative Strategies

Room: Grand Ballroom Salon IV

Presider: Wesley B. Pitts

Paper 1: Improving the Quality of Science Instruction in Primary Schools in Cape Coast in Ghana

Christopher Beccles

Paper 2: Investigating the University Learning Environment, Student Engagement and Satisfaction Among Science Majors

Shwu-yong L. Huang

Paper 3: A Web-Based Science-Technology-Society Program for Gifted Students in South Korea: Development and Implementation

Gilsun Lim

Robert E. Yager

Paper 4: High School Biology Students' Evolution Learning Experiences

Lisa A. Donnelly

Valarie L. Akerson

Strand 3: Coordinator Organized Paper Set: Primary Science Teachers' Conceptions and Practice

Room: Grand Ballroom Salon 1

Presider: Terry Shanahan

Paper 1: Experienced Primary Teachers' and Primary Science Student Teachers' Collaborative Learning Through Reflection on Their Science Teaching

Pernilla K. Nilsson

Jan H. van Driel

Paper 2: Exploring the Intersection of Writing and Science in Elementary Classrooms

Nicole Glen

Sharon Dotger

Paper 3: Preservice Elementary Teachers' Ideas about Evolution: Interrelationships with Self-efficacy, College Science Courses, and Science Content Knowledge

Diana C. Rice

Cynthia Lundeen

Sibel Kaya

Paper 4: Egomorphism, a Teacher's Discursive Pedagogical Artifact in/for Science Education

Bruno D. O. Jayme

Giuliano Reis

Wolff-Michael Roth

Strand 4: Coordinator Organized Paper Set: Students' Content Knowledge and Personal Epistemologies

Room: Kent A

Presider: Huseyin Colak

Paper 1: The Relationship Between the Development of Nature of Science Views and Personal Epistemologies of Upper Elementary and Middle School Students

Huseyin Colak

Khemmawadee Pongsanon

Paper 2: Classroom Talk Analysis of a Science Teacher Balancing Teaching to the Test and for Conceptual Understandings

Sara L. Salloum

Saouma B. BouJaoude

Paper 3: The Impact of a Kinesthetic Astronomy Curriculum on the Content Knowledge of At-Risk Students

Stephanie J. Slater

Timothy F. Slater

Cherilynn Morrow

Paper 4: Nanoscience Instruction in Physics

Thomas R. Tretter

Gail Jones

Jennifer Wolf

Strand 5: Coordinator Organized Paper Set: Methods of Physics Instruction

Room: Essex A

Presider: Lynn A. Bryan

Paper 1: Experimentation with Combined Physical and Virtual Materials: An Attempt to Enhance Undergraduate Students' Conceptual Understanding in Physics

Zacharias C. Zacharia

Paper 2: The Development of Conceptual Thinking in Inquiry-Based Physics

Bruce R. Patton

Jennifer Esswein

Paper 3: Undergraduate Students' Reasoning Skills and Conceptual Development in an Inquiry Class

Omer Acar

Anita Roychoudhury

Bruce R. Patton

Paper 4: The Process of Physics TAs' Knowledge Development for Teaching a New Physics Curriculum

Eulsun Seung

Lynn A. Bryan

Mark Haugan

Strand 6: Coordinator Organized Paper Set: From Children through Staff-- Learning across Science Centers

Room: Laurel C

Presider: Leonie Rennie

Paper 1: What Did You Learn at the Science Centre? Using Video in Stimulated Recall Interviews With Primary School Children

Jennifer Dewitt

Paper 2: Guided Dialogue at Science Centers

Nana Quistgaard

Paper 3: Hands-On or Minds-On? Zones of Interaction and Expressions of Curiosity in an Interactive Science Center

Yael Bamberger

Strand 7: Coordinator Organized Paper Set: Examining Teacher Education/Certification Programs II

Room: Kent B

Presider: Carol Johnston

Paper 1: Prospective STEM Teachers' Early Schooling Experiences and Exposures as Drivers to Teach in High Needs Schools

Athena R. Ganchorre

Debra Tomanek

Paper 2: STEM Career-changers Transition to Teaching: I Have to Become a Student Again?

Carol Johnston

Jeanne M. Grier

Paper 3: The Student Associates Scheme: Implications for the Quality of Initial Teacher Training (ITT) in England and Wales

Stuart C. Bevins

Marilyn M. Brodie

Eleanor Brodie

Paper 4: Science and Mathematics Persistence of First-Generation Mexican American Non-Traditional Students in Teacher Education

M. Gail Shroyer

Amanda R. Morales

Cecilia M. Hernandez

Kimberly A. Staples

David Allen

Strand 8: Coordinator Organized Paper Set: Teacher Identity and Beliefs

Room: Kent C

Presider: Martina Nieswandt

Paper 1: Retention of Urban Science Teachers: Pathways Toward Integration or Participation

Carol Rinke

Paper 2: Identities in a Community of Practice: The Role of Beginning Science Teachers' Identities in Becoming a Member of Their School Community and Implementing Science Education Reform

Yavuz Saka

Sherry A. Southerland

Paper 3: Between Theory and Practice: Beginning High School Science Teachers' Beliefs About Science and Science Teaching Over Time

Martina Nieswandt

Paper 4: Reforming Science Teaching and Learning in Australian Primary Schools: An Innovative, Low Cost and Successful Model

Mark Hackling

Vaughan Prain

Shelley Peers

Strand 8: Coordinator Organized Paper Set: In-Service Teacher Programs: What Works?

Room: Dover B

Presider: Anil Banerjee

Paper 1: An Examination of the Process of Supporting Uncertified Science Teachers: What New Teachers Need to Succeed

Wendy M. Frazier

Donna R. Sterling

Mollianne G. Logerwell

Paper 2: The Impact of a Five-Year, K-6 Systemic Reform Effort on Elementary School Students' Achievement in Science

James A. Shymansky
Leonard A. Annetta
Susan A. Everett
Larry Yore

Paper 3: "I'm Invested in the Outcome": Professional Development that Matters in the Eyes of Teachers

Tom J. McConnell
Tianyi Zhang
Meilan Zhang
Mary Lundeborg
Jan Eberhardt

Strand 9: Coordinator Organized Paper Set: Reflective Practice and Science Teacher Education II

Room: Laurel B

Presider: Tamara Holmlund Nelson

Paper 1: Reflective Practice as a Mechanism for Fostering Science Teacher Educators' Identity Development in an International Context

Brenda Capobianco

Paper 2: Students' Learning about Plants in Elementary Science Methods: Journal Writing and the Uncertainties of Assessment

Elaine V. Howes

Paper 3: Making Formative Assessment Discernible to Pre-Service Teachers: A Pragmatic Self-Study

Gayle A. Buck
Julianne L. Kaftan
Jennifer Nelson

Strand 10: Coordinator Organized Paper Set: Assessment Development III

Room: Essex C

Presider: Robert J. Ochsendorf

Paper 1: Diagnostic Research, Development and Implementation of a New Approach to the Teaching of Chemical Bonding

Tami Levy Nahum
Rachel Mamlok-Naaman
Avi Hofstein

Paper 2: A Methodological Framework for Studying Worldviews' Changes

Konstantinos Korfiatis
Tasos Hovardas

Paper 3: Developing a Large Scale Assessment Instrument Measuring Students' Competencies in Nature of Science and Scientific Inquiry

Irene Zilker
Gary M. Holliday
Alexander Kauertz
Hans E. Fischer
Judith S. Lederman
Norman G. Lederman

Paper 4: Argumentation and Conceptual Understanding: Grade 10 Students' Learning About Genetics

Vaile M. Dawson
Grady J. Venville

Strand 11: Symposium: Why Our Students Stay: Strategies for Retention and Teaching of Women of Color in STEM Disciplines

Room: Laurel A

Presider: Angela Johnson

Angela Johnson
Sybol C. Anderson
Terrell Lasane
Katherine Norlock
Katherine Socha
Linda Coughlin

Break

10:00AM – 10:30AM

Session 12

10:30AM – 12:00PM

Research Committee Sponsored Workshop: Considerations and Complexities of Large Scale Studies

Room: Dover A

Presider: Randy Yerrick

Sharon J. Lynch
Curtis Pike
Mike Vitale
Nancy Butler-Songer
Carol ODonnell
Randy Yerrick

Strand 1: Coordinator Organized Paper Set: Students' Understanding of Scientific and Medical Practice

Room: Essex B

Presider: Susan A. Yoon

Paper 1: Group Interaction in Hands-On Activities Related to Medical Image Reconstruction

Spartak Kalita

Dean A. Zollman

Paper 2: Translations of Scientific Practice to High School Students' "Images of Science"

Michiel van Eijck

Pei-Ling Hsu

Wolff-Michael Roth

Strand 2: Related Paper Set: Designing and Testing the MoDeLS Progression

Room: Laurel D

Presider: Eduardo F Mortimer

Paper 1: Designing and Testing the MoDeLS Progression

Christina Schwarz

David Fortus

Jo Ellen Roseman

Barbara Ladewski

Ted Willard

Joe Krajcik

Paper 2: Incorporating Modeling Practices Into Elementary Students' Scientific Investigations

Lisa Kenyon

Christina Schwarz

Barbara Hug

Hamin Baek

Brandy Buckingham

Paper 3: Incorporating Modeling Practices Into Middle School Project-Based Science

David Fortus

Ayelet Weizman

Yael Schwartz

Joi Merritt

Christina Schwarz

Paper 4: Promoting Preservice Teachers' Understanding and Use of Scientific Modeling in Teaching and Learning

Barbara Hug

Lisa Kenyon

Elizabeth Davis

Michele Nelson

Paper 5: Progress and Challenges in Making Modeling Practices Meaningful

Brian J. Reiser

Christina Schwarz

Joe Krajcik

Elizabeth Davis

Strand 4: Related Paper Set: Nanoscale Science Education in Grades 7-12: What Do Teachers Need to Know?

Room: Kent A

Presider: Lynn A. Bryan

Paper 1: Middle and High School Teachers' Emerging Conceptions of Nanoscale Science

Lynn A. Bryan

David Sederberg

Alan Szeto

Shanna Daly

Kelly Hutchinson

Fatima Benaissa

Nick Giordano

Paper 2: Nanoscale Phenomena Models: Middle and High School Teachers' Conceptions of their Use in Curricula

Shanna Daly

Lynn A. Bryan

Paper 3: Development of a Learning Progression for Students' Conceptions of Size and Scale

Clara Cahill

Shawn Stevens

Namsoo Shin

Paper 4: Emergent Conceptions of Size and Properties in the Context of Nanoscale Science

Cesar Delgado

Namsoo Shin

Joseph Krajcik

Paper 5: A Qualitative Analysis of Factors Influencing Students' Interests in Nanoscale Science

Kelly Hutchinson

George Bodner

Lynn A. Bryan

Strand 5: Symposium: Is Post-Secondary Biological Education Addressing the Evolution/Creation Controversy?

Room: Essex A

Presider: Kimberly D. Tanner

Leslie Sandra Jones

Deborah Allen

Kathleen Fisher

Ellen Granger

Kim Sadler

Strand 7: Coordinator Organized Paper Set: Inquiry Teaching and Learning for Preservice Teachers

Room: Kent B

Presider: Paul Bueno de Mesquita

Paper 1: Prospective Science Teachers' Construction of Inquiry in the Context of Planning and Teaching Inquiry Based Lessons

Larry Horvath
Cynthia Passmore

Paper 2: Examining the Ability to Construct a 5E Learning Cycle Science Lesson Plan

Richard H. Moyer
Susan A. Everett

Paper 3: Teacher Talk, Science Questions, and Depth of Inquiry of Preservice Elementary Teachers During an Initial Inquiry Science Lesson

Paul Bueno de Mesquita
Betty J. Young
Celeste Bowler
Laurie Center
Cristen Henderson

Paper 4: Use and Quality of Inquiry Pedagogy in the Science Video Lessons of Elementary Preservice Teachers

Betty J. Young
Barbara L. Nowicki
Barbara Fitzsimmons
Kathleen Guglielmi
Judy Paolucci
Sharon K. Lee

Strand 8: Coordinator Organized Paper Set: Attitudes and Perceptions Towards NOS and Inquiry

Room: Kent C

Presider: Catherine Wissehr

Paper 1: "Biology in Context": Teachers' Professional Development in Learning Communities

Doris Elster

Paper 2: Investigating the Influence of Teachers' NOS Conceptions on Their Ability and Willingness to Integrate Inquiry into Their Instruction as Revealed through Online Learning

Hakan Atar
Alejandro Gallard

Paper 3: Middle Level Teacher Reflections on Inquiry and Standards Based Science Instruction

Loran C. Parker
Gerald H. Krockover

Paper 4: Elementary Teachers' Beliefs and Practical Knowledge About Teaching Science as Inquiry: The Effect of an Inquiry-Based Elementary Science Course

Sanghee Choi
John Ramsey

Strand 10: Coordinator Organized Paper Set: Curriculum Adaptation

Room: Essex C

Presider: Xiufeng Liu

Paper 1: Smaller is Smarter: Technology Enriched Project-Based Inquiry at a Public Urban Academy

Regina E. Toolin

Paper 2: Activities to Promote Student Learning of the Role of Proteins in Modern Genetics

Jennifer Eklund
Nonye Alozie

Paper 3: Qualitative Analysis of Primary Level Students' Scientific Competencies Working With M(odeling)-Open Problems

Sabine Mogge
Helmut Vogt
Bernd Wollring

Paper 4: Improving Students' Conceptual Understanding of Physics and Chemistry: A Modeling Approach

Ling L Liang
David Majerich
Richard Clevensine
Raymond Howanski

NARST Board of Directors Meeting 3

Buffer lunch for Board members starting at 12:00pm

12:30PM – 4:00PM

