RAE OSTMAN

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SUMMARY

STEM engagement and education expert with twenty-five years' experience developing, implementing, and studying programs, exhibitions, and media in informal learning settings such as museums. I have held leadership roles in science centers, professional networks and associations, and academia. My current focus is building capacity for individuals, organizations, and communities to understand our world and shape the future through collaborations among universities, informal learning organizations, and community organizations. Together, we create opportunities for members of the public, educators, scientists, engineers, and decision-makers to engage in mutually informative learning and dialogue about the kind of society we want to live in—and the role of science, technology, engineering, and math (STEM) in achieving that vision.

EXPERIENCE

2014– **Arizona State University**

Research Professor, School for the Future of Innovation in Society (2021–)

Co-director, Center for Innovation in Informal STEM Learning (2017–)

Associate Research Professor, School for the Future of Innovation in Society (2014–2021)

Senior Global Futures Scientist, Julie Ann Wrigley Global Futures Laboratory (affiliation)

Co-lead a research center investigating how people learn science, technology, engineering, and math (STEM) throughout their lives. Partner locally and nationally to advance research and practice related to informal learning. Plan, develop, and lead collaborative projects creating exhibits, programs, and media for educational, cultural, and community organizations. To date, have secured 20+ externally funded projects to date bringing over $34 million to the university.

2017– **National Informal STEM Education Network**

Director (2017–)

Direct a national network of hundreds of organizations and thousands of professionals, which engages millions of people each year. Transitioned the Network from a single project to an ongoing organization with multiple

projects and diverse funding sources. Collaborate on projects to create high-quality, freely accessible educational materials and professional development resources for informal and lifelong learning.

2014–2017 Science Museum of Minnesota, Saint Paul, MN
Director of Special Projects, Science Learning (2015–2017)
Consultant (2014–2015)

Planned and participated in informal STEM learning projects. Co-led strategic planning. Participated in grant writing, including several successful proposals.

2013–2014 Royal Ontario Museum, Toronto, CANADA
Managing Director, ROM Ancient Cultures (2013–2014)

Founding director for research center. Developed community partnerships and coordinated across the museum to produce programs, exhibitions, and communications related to ancient cultures research and collections. Participated in senior management team and fundraising.

2005–2012 Sciencenter, Ithaca, NY
Director of National Collaborations (2009–2012)
Director/Manager of Education (2005–2009)

As director of national collaborations, led and participated in projects to support STEM learning locally, statewide, and nationally. As director/manager of education, created and implemented a strategic plan for education. Maintained an active program and event schedule, supervising staff and volunteers responsible for public programs, school programs, afterschool programs, camps, and outreach programs. In both roles, developed, delivered, and evaluated programs and exhibits according to project objectives and organizational dashboard. Participated in grant writing and fundraising.

2001–2005 Exploratorium, San Francisco, CA
Exhibits Group Manager (2004–2005)
Project Manager and Exhibit Area Manager (2001–2003)

As exhibits group manager, supervised staff and volunteers that developed, fabricated, and maintained hundreds of interactive exhibits. As project manager, oversaw workflow, budget, and reporting for exhibition development and related programming. As area manager for Matter/World and Sound & Hearing, ensured the safe installation and operation of exhibits on the museum floor. Participated in strategic planning, structural reorganization, and grant writing.

1998–2000 Acoustiguide Worldwide, New York, NY
Project Director (full-time and part-time)

Led the creative production of audio tours for museums and cultural organizations, working with curators, educators, and creative talent. Produced

dozens of tours, including permanent and temporary exhibitions, family tours, and multilingual tours.

1999–2000 **American Museum of the Moving Image, Astoria, NY**
Educator (part-time)
Delivered group tours, school programs, and public demonstrations.

1987–1992 **Cornell Botanic Gardens, Ithaca, NY**
Guest Services Staff (part-time)
Provided information to visitors of the gardens and arboretum.

EDUCATION

1994–2002 **New York University, New York, NY**

PhD, Anthropological Archaeology (2002)
MA, Anthropological Archaeology (1997)

Investigated the development and change through time of complex societies. Master's thesis studied social status in Viking Age Scandinavia. Dissertation focused on the economy of Volterra, Italy from the Etruscan to late antique periods.

1990–1994 **Cornell University, Ithaca, NY**

BA, Cultural Analysis of Arts (1994)
College Scholar Program, College of Arts and Sciences

Graduated *summa cum laude* and with distinction in all subjects. Senior honors thesis examined the changing social, cultural, and political meaning of a Tlingit totem pole that was removed from the northwest coast by the Harriman Expedition and brought to Cornell University (since repatriated).

FELLOWSHIPS, HONORS & AWARDS

2024 **American Geophysical Union**
Excellence in Earth and Space Science Education
Award presented to NASA Science Activation principal investigators

2023 **University of Turku, Finland and Finnish Institute for Health and Welfare**
INVEST Fellow
One month fellowship for the project *Co-creating sustainable futures with youth and communities* at the Inequalities, Interventions, and New Welfare State (INVEST) Center, as part of the Skills and Learning Research Theme

2022 **Arizona State University**
President's Medal for Social Embeddedness

Award presented to the *STEM and social capital: Advancing families through learning and doing* project team (PI E. Judson)

2022 **Fulbright Foundation, Finland**
Fulbright Specialist

One month exchange for the project *Shared learning to shape an inclusive future: Building capacity for innovative engagement* project with Heureka and the Finnish Science Centre Association

2017 **Society for Social Studies of Science (4S)**
Distinguished Contributions to STS Making & Doing

People's Choice Award, Society for Social Studies of Science (4S)

1994–1999 **New York University**
Henry Mitchell MacCracken Fellowship

Multi-year graduate fellowship providing full funding for PhD studies

1999–2000 **United States Department of Education**
Foreign Language and Area Studies Fellowship

Fellowship supporting dissertation fieldwork

1997 **New York University**
Bert Salwen Memorial Fellowship

Fellowship supporting graduate fieldwork

1996 **University of Calgary**
Bea Loveseth Memorial Prize

Best student paper, Chacmool Archaeology Conference

1994 **Phi Beta Kappa**
National honor society

Member of Cornell University chapter

1994 **Cornell University**
Merrill Presidential Scholar

Recognition for the most outstanding graduating seniors

GRANTS & PROJECTS

Projects are listed in reverse chronological order by start date. Recognition is indicated only for federally funded ASU awards and subwards, as it is not customary for informal learning organizations to allocate recognition.

External funding – current

1. *Engaging Hispanic communities in authentic NASA science: Broadening participation in Science Activation through local partnerships and national networks,* NASA #80NSSC22M0122, PI P. Martin, $5,833,105, 5/2/2022–4/30/2026. Role: Co-investigator. Recognition: 50% ($2,499,886).
2. *Engaging Latinx youth in understanding the science of climate change by developing digital narratives and games,* NSF #2148016, PI R. Ostman, $359,998, 7/1/2022–6/30/2024. Role: Principal investigator. Recognition: 20% ($72,000).
3. *Sparking interest in STEM among Hispanic learners nationwide through meaningful connections to NASA explorations and discoveries,* NASA #80NSSC22M0100, PI M. Cawley, $799,984 award with $24,952 contract to ASU, 1/1/2022–12/31/2025. Role: Coordination across Network projects. Recognition: 0% ($0).
4. *SciAct STEM ecosystems to broaden participation in authentic STEM learning: Connecting subject matter experts, communities, and learners of all ages,* NASA #80NSSC210007, PI R. Ostman, $4,945,885, 1/1/2021–12/31/2025. Role: Principal investigator. Recognition: 50% ($2,472,943).
5. *Promoting aspirations in science, technology, engineering, and mathematics through youth and family engagement,* NSF #2045306, PI E. Judson, $1,275,097, 1/1/2021–12/31/2024. Role: Coordination of Center staff involvement. Recognition: 0% ($0).

External funding – completed

1. *Advancing refugee youths' STEM and social capital through family-focused learning,* NSF #2003126, PI E. Judson, $299,807, 1/1/2021–12/31/2023. Role: Co-principal investigator. Recognition: 13% of ASU award ($38,975).
2. *Destination moon,* NASA #80NSSC21M00082, PI M. Kortenaar, $1,000,000 award with $15,000 contract with ASU, 1/1/2021–12/31/2023. Role: ASU Principal investigator. Recognition: 100% of ASU award ($15,000).
3. *New directions for neuroscience public engagement: Barbara Gill Civic Science Fellow*, Dana Foundation, PI R. Ostman, $334,968, 9/1/2021–8/30/2022. Role: Principal investigator. Recognition: 100% ($334,968).
4. *Sustainable museums: Professional development to support fieldwide capacity in practice, partnerships, and education for sustainability,* IMLS #MG-245910-OMS-20, PI R. Ostman, $431,443, 9/1/2020–8/31/2023. Role: Principal investigator. Recognition: 50% of ASU award ($215,722).
5. *Build a Mars habitat: Survive and thrive,* NASA #80NSSC20M0030, PI C. Dwyer, $1,000,000 award with $20,000 contract to ASU, 1/1/2021–12/31/2023. Role: ASU principal investigator. Recognition: 25% of ASU award ($5,000).
6. *Space and Earth informal STEM education,* NASA #80NSSC18M0061, PI P. Martin, $4,332,118, 1/1/2021–12/31/2023 and NASA #NNX16AC67A, PI P. Martin,

$15,760,114, 1/1/2015–12/31/2023. Role: Co-investigator. Recognition: 50% of ASU continuation in 2020 ($2,166,059); 45% of ASU award in 2017 ($5,074,102); 90% of ASU subaward in 2015 ($550,198).

7. *Moon and beyond: An immersive game for STEM learning in museums and planetariums*, NASA #80NSSC18K1219, PI D. Briere, $749,582 award with $184,891 subaward to ASU, 1/1/2019–12/31/2022. Role: Co-investigator. Recognition: 50% of ASU subaward ($92,446).
8. *Citizen science, civics, and resilient communities: Increasing resilience through citizen-created data, local knowledge and community values*, NOAA #NA18SEC0080008, PI D. Sittenfeld, $500,000 award with $94,94 ASU subaward, 10/1/2018–9/30/2022. Role: Senior personnel. Recognition: 33% of ASU subaward ($31,331).
9. *ChemAttitudes: Using design-based research to develop and disseminate strategies and materials to support chemistry interest, relevance, and self-efficacy,* NSF #1612482, PI L. Bell, $2,930,748 total with $111,225 subaward to ASU, 10/1/2016–9/30/2021. Role: Co-principal investigator. Recognition: 85% of ASU subaward ($94,541).
10. *Increasing learning and efficacy about emerging technologies through transmedia engagement by the public in science-in-society activities,* NSF #1516684, PI E. Finn, $2,953,905, 8/1/2015–7/31/2021. Role: Co-principal investigator. Recognition: 10% ($295,391).
11. *Sustainability in science and technology museums,* Rob and Melani Walton Foundation, $175,000 subaward, 6/1/2015–5/31/2018, and $740,000 subaward, 10/1/2018–9/30/2020. Role: Senior personnel.
12. *Planning and partnerships conference for neuroscience public engagement,* Kavli Foundation, $89,705, PI J. Das, 2018. Role: Senior personnel.
13. *Libraries as community hubs for citizen science,* IMLS #LG-95-17-0158-17, $249,983, PI D. Cavalier, 11/1/17–10/31/18. Role: Co-principal investigator. Recognition: 10% ($24,998).
14. *Maximizing collective impact through cross-sector partnerships: Planning a SENCER and NISE Net collaboration,* NSF #1612376, PI W. Burns, $149,987, 9/15/2016–9/14/2017. Role: Personnel.
15. *SusChEM: Focus on sustainability-integrated approaches to materials for sustainable development,* NSF #1619487, PI A. White, $73,334, 3/15/2016–2/28/2018. Role: Personnel.
16. *True stories well told: Using narrative to search for harmonies between science and religion,* John Templeton Foundation, $871,749, PI L. Gutkind, 9/1/2015–8/3/2018. Role: Senior personnel. Recognition: 20% ($174,349.80).
17. *Multi-site public engagement with science – Synthetic biology,* NSF #1421179, PI L.

Bell, $2,288,713, 10/1/2014–9/30/2018. Role: Personnel.

18. *Networks for characterizing chemical life cycle: Life cycle of nanomaterials,* EPA/NSF #RD835580 and #RD83558001, $5,000,000, PI P. Westerhoff, 3/19/2014–11/30/2018. Role: Personnel.
19. *21-Tech: 21st century exhibit facilitators and personal mobile technologies,* IMLS, $440,000, PI C. McCallum, 10/1/2010–9/30/2013. Role: Sciencenter principal investigator.
20. *C3: Communicating climate change,* NSF #0813135, $2,998,311, PI W. Staveloz, 9/15/2008–12/31/2012. Role: Personnel.
21. *Here to the ocean,* NOAA, $750,000, PI C. Trautmann, 6/1/2008–9/30/2012. Role: Personnel.
22. *DragonFly TV GPS: Investigating the nanoworld*, NSF#0741749, $1,982,391, PI R. Hudson, 5/1/2008–4/30/2011. Role: Personnel.
23. *Science museum chemistry programs for school and family audiences,* Henry and Camille Dreyfus Foundation, PI R. Ostman, $31,000, 1/1/2007–12/30/2010. Role: Principal investigator.
24. *Climate change activity toolkit,* IMLS, $75,000, PI C. Trautmann, 10/1/2007–9/30/2009. Role: Senior personnel.
25. *Nanoscale Informal Science Education Network,* NSF #0532536 and #0940143, $41,741,754 total award, PI L. Bell, 9/1/2005–2/28/2017. Role: Senior personnel.
26. *Going APE: Achieving active, prolonged engagement with science center exhibits,* NSF #0087844, $1,284,590, PI T. Humphrey, 06/01/2001–12/31/2005. Role: Senior personnel.
27. *Listening: Making sense of the sonic soup,* NSF #0307925, $2,098,873, PI T. Humphrey, 09/01/2003–8/31/2007. Role: Senior personnel.

Internal funding – current

1. *Hosting community conversations about water challenges with rural Arizona youth using an extended reality (XR) game,* Arizona Water Innovation Initiative, PI N. Weller, $80,000.00, 7/1/2023–6/30/2025. Role: Co-principal investigator.

Internal funding – completed

1. *Flavor stories: An affective-cognitive approach to breaking down generational and cultural barriers to sustainable futures,* Global Futures Laboratory and College of Global Futures Collaborative Grants Program, $9,999, PI C. Spackman, 6/1/2021–5/30/2023. Role: Co-principal investigator.
2. *Climates of inequality: Stories of environmental justice,* Humanities Action Lab, 2017–2022. Role: ASU co-lead.

3. *Becoming human,* School for the Future of Innovation in Society in collaboration with the Institute of Human Origins, 2017–2018. Role: Co-leader.
4. *ROM Game Jam!* Royal Ontario Museum, University of Toronto, and other collaborating organizations, 2013–2015. Role: Co-founder and project director.
5. *Sound and hearing*, Exploratorium Capital Campaign, $750,000, 2001–2003. Role: Project manager.

MAJOR PRODUCTS

Programs and activities

Selected project materials created in collaboration with the Center for Innovation in Informal STEM Learning and the National Informal STEM Education Network. Listed in reverse chronological order.

1. Arizona State University and NISE Network. (2023). *Changing Brains* [learning materials and educator resources]. https://www.nisenet.org/brain

   Informal STEM activities that promote conversations related to emerging neurotechnologies. Digital materials available online.

2. BCBS Science Learning and NISE Network. (2023). *Making Waves with Radio* [learning materials and educator resources]. https://www.nisenet.org/making-waves-radio-kit

   Informal STEM activities exploring radio technologies. Digital collection available online.

3. Sciencenter and NISE Network. (2023). *Explore Science: Voyage through the Solar System* [learning materials and educator resources]. https://www.nisenet.org/voyage-solar-system

   Informal STEM activities exploring NASA's pursuit of human exploration of the Moon and Mars. Physical kits distributed to 350 organizations across the US; digital materials available online.

4. Howtosmile and NISE Network. (2022). *At-home activities* [learning materials and caregiver resources]. https://www.nisenet.org/howtosmile-at-home-activities

   STEM activities designed for families to do at home. Digital materials available online.

5. Museum of Science and NISE Network. (2021). *Climate hazard public programs* [learning materials and educator resources]. https://www.nisenet.org/CSCRC

   Public forums and citizen science activities to increase community resilience to extreme weather and environmental hazards. Digital materials available online.

6. Arizona State University and NISE Network. (2021). *Moon Adventure Game* [learning materials and educator resources]. https://www.nisenet.org/moongame

Collaborative game where players solve a series of hands-on challenges related to living and doing scientific research on the moon. The physical game was distributed to 350 organizations across the US; digital materials available online.

7. Arizona State University and NISE Network. (2020). *Sustainable Futures* [learning materials and educator resources]. https://www.nisenet.org/sustainable-futures

   Collection of materials available online.

8. Museum of Science and NISE Network. (2018). *Explore Science: Let's Do Chemistry* [learning materials and educator resources]. https://www.nisenet.org/chemistry-kit

   Informal STEM activities supporting learners' interest, sense of relevance, and feelings of self-efficacy related to chemistry. Distributed to 250 organizations across the US for use in National Chemistry Week events; digital materials available online.

9. Arizona State University and NISE Network. (2018). *Frankenstein200* [learning materials and educator resources]. https://www.nisenet.org/frankenstein

   Hands-on activities and an online alternate reality game supporting creativity, scientific exploration, and consideration of responsible innovation. Physical kits distributed to 50 organizations across the US; digital materials available online.

10. Arizona State University and Think, Write, Publish. (2018). *Science and Religion* [program materials]. https://scienceandreligion.thinkwritepublish.org/resources/

    Public programs designed to provide opportunities for reflection and conversation about the relationship of science and religion. Digital materials available online.

11. Science Museum of Minnesota and NISE Network. (2017, 2018, 2019, 2020). *Explore Science: Earth & Space* [learning materials and educator resources]. https://www.nisenet.org/earthspacekit

    Informal STEM activities exploring NASA Earth and space science. A total of 1,200 physical kits were distributed to over 400 organizations across the US; digital materials available online.

12. Museum of Science and NISE Network. (2016). *Building with Biology* [learning materials and educator resources]. https://www.nisenet.org/building-with-biology-kit

    Informal STEM activities supporting conversations among learners, educators, and scientists related to synthetic biology and genetic engineering. Physical kits distributed to 200 organizations across the US; digital materials available online.

13. Science Museum of Minnesota and NISE Network. (2016). *Explore Science: Zoom into Nano* [learning materials and educator resources]. https://www.nisenet.org/explorescience-nano

    Resources to build and strengthen partnerships among museums and other community organizations to support informal learning about nanoscale science,

engineering, and technology. Physical kits were distributed to 100 organizations across the US; digital collection available online.

14. Arizona State University and NISE Network. (2016). *sustainABLE* [learning materials and educator resources]. https://www.nisenet.org/sustainable-kit

    Informal STEM activities related to sustainability science and practice. Physical kits distributed to over 200 organizations across the US; digital collection available online.

15. NISE Network (2013). *DIY Nano* [learning materials]. https://www.nisenet.org/catalog/diy-nano

    Book of hands-on activities focused on nanoscale science, engineering, and technology, designed for families to do at home.

16. Sciencenter and NISE Network. (2009, 2010, 2011, 2012, 2013, 2014, 2015). *NanoDays* [learning materials and educator resources]. https://www.nisenet.org/nanodays/archive

    Informal STEM activities exploring nanoscale science, engineering, and technology. A total of 1,650 physical kits with educator training materials were distributed to over 450 organizations across the US; digital collection available online.

17. NISE Network. (2008–2015). Nanoscale Informal Science Education public programs [learning materials and educator resources]. https://www.nisenet.org/

    Digital collection of over 100 public programs exploring nanoscale science, engineering, and technology, designed for use in informal learning environments.

Exhibitions, media, and websites

Selected project materials created in collaboration with the Center for Innovation in Informal STEM Learning and the National Informal STEM Education Network. Listed in reverse chronological order.

1. NISE Network. (n.d.) *nisenet.org* [website]. https://www.nisenet.org/

   Website with STEM engagement resources, including educational and professional development materials.

2. Arizona State University and NISE Network. (2023). *Mission Future: Arizona 2045* [exhibition]. https://www.nisenet.org/mission-future-exhibition

   A 2,500 square foot exhibition on long-term display at the Arizona Science Center exploring climate resilience and developments in space exploration and science. Estimated to be visited by 174,000 people each year.

3. BCBS Science Learning and NISE Network. (2024). *Whispers in the Wind* [mobile app]. https://www.apple.com/app-store/ and https://play.google.com/store/apps

   Interactive story game about radio science, available to download.

4. Lawrence Hall of Science and NISE Network. (2023). *DIY Solar System* [mobile app]. https://www.apple.com/app-store/ and https://play.google.com/store/apps

   Educational app with videos and activities exploring planetary science, available to download.

5. Lawrence Hall of Science and NISE Network. (2022). *DIY Sun Science* [mobile app]. https://www.apple.com/app-store/ and https://play.google.com/store/apps

   Educational app with videos and activities exploring sun science, available to download.

6. Rutgers University and Humanities Action Lab. (2019). *Climates of Inequality: Stories of Environmental Justice* [exhibition]. http://climatesofinequality.org/

   Multimedia traveling exhibition and programming created by a coalition of students, educators, and community leaders in 20+ cities.

7. Science Museum of Minnesota and NISE Network. (2019). *Sun, Earth, Universe* [exhibition]. https://www.nisenet.org/catalog/sun-earth-universe-exhibition

   A 600 square foot exhibition produced in 52 copies for long term display at over 100 organizations. Together, the exhibition copies are conservatively estimated to engage 7 million people each year in learning about Earth and space science.

8. Lawrence Hall of Science and NISE Network. (2013). *DIY Nano* [mobile app]. https://www.apple.com/app-store/ and https://play.google.com/store/apps

   Educational app with videos and activities exploring nanoscale science, engineering, and technology, available to download.

9. Science Museum of Minnesota and NISE Network. (2012). *Nano* [exhibition]. https://www.nisenet.org/catalog/exhibits/nano_mini-exhibition

   A 500 square foot exhibition produced in 93 copies, has been on long-term display at over 150 sites. The exhibition is conservatively estimated to engage 10 million people each year in learning about nanoscale science, engineering, and technology.

10. Exploratorium. (2006). *Listen: Making Sense of Sound* [exhibit collection]. https://www.exploratorium.edu/

    Collection of permanent exhibits focused on subtle and profound aspects of hearing and listening.

11. Exploratorium. (2005). *Going APE (Active, Prolonged Engagement)* [exhibit collection]. https://www.exploratorium.edu/

    Collection of 30 permanent exhibits at the Exploratorium that support self-directed, extended inquiry into the physical sciences.

Professional development

Selected project materials created in collaboration with the Center for Innovation in Informal STEM Learning and the National Informal STEM Education Network. Listed in reverse chronological order.

1. NISE Network. (2024). *STEM learning ecosystems* [videos, guides, slides, and graphics]. https://www.nisenet.org/stem-learning-ecosystems

   Resource collection sharing principles and practices of community-based partnerships to broaden participation in STEM learning and engagement.

2. NISE Network. (2021–2022). *Making Earth and space relevant and inclusive* [videos, guides, and slides]. https://nisenet.org/making-relevant-inclusive

   Around 100 museum professionals participated in a year-long community of practice to broaden participation in Earth and space science. Program resources are available online.

3. NISE Network. (2021). *Let's do chemistry: Train-the-trainer workshops* [videos, guides, and slides]. https://www.nisenet.org/chemistry-train-the-trainer

   Around 75 educators and scientists participated in professional development workshops related to chemistry. Program resources are available online.

4. NISE Network and Arizona State University. (2019–2022). *Sustainability fellowship* [videos, guides, and slides]. https://www.nisenet.org/sustainability-fellowship

   Community of practice with workshops, virtual meetings, and resources to support museum professionals in carrying out sustainability projects at their organizations. Over 200 educators participated in six cohorts. Program resources are available online.

5. NISE Network. (2012). *Nano and society* [videos, guides, and slides]. https://www.nisenet.org/events/other/nano-society-workshop

   Around 100 educators participated in a series of workshops held across the US, focused on facilitating meaningful conversations about science, technology, and society. Program resources are available online.

PUBLICATIONS

Listed in reverse chronological order.

Peer reviewed articles and chapters

1. Kollmann, E. K., Atwood, A., Anderson, A., Ostman, R., Bledsoe, K. L., Buffington, C., Cass, M., DeLisi, J., Jackson, A., Leavell, C., Mannis, K., Martin, P., McCarthy, C., Neff, R., Peake, L., & Sparrow, E. (Accepted and in revision). Implementing culturally responsive evaluation methods in a study of stem learning ecosystems: Reflections on challenges to traditional understandings of power, validity, and rigor. *Visitor Studies.*

2. Ostman, R., Anderson, A., Kollmann, E. K., & Martin, P. (2024). *Mission Future:* An experiential future. *Exhibition 43* (1), pp. 32–44. https://www.nisenet.org/catalog/mission-future-exhibition-journal-article
3. Ostman, R., Nagy, P., Mawasi, A., Finn, E., & Wylie, R. (2022). Exploring responsible research and innovation in museums through hands-on activities. *Curator: The Museum Journal* 65(2), pp. 1–29. https://doi.org/10.1111/cura.12530
4. Ostman, R., Zirulnik, M. & McCullough Cosgrove, J. (2019, April). Storytelling, science, and religion: Promoting reflection and conversation about societal issues. *Curator: The Museum Journal* 62(2), pp. 117–134. https://doi.org/10.1111/cura.12301
5. Ostman, R., Chu, S. & Mader, M. (2018). Interpreting objects through digital games: The ROM Game Jam. *Exhibition* 37(1), pp. 40–51. https://www.aam-us.org/wp-content/uploads/2024/03/10_Exhibition_SP18_InterpretingObjectsThroughDigitalGames_fab084.pdf
6. Ostman, R. (2017). Conversations about technology and society: Techniques and strategies to encourage civic engagement in museums. *Science Education and Civic Engagement: An International Journal* 9(2), pp. 47–58. https://seceij.net/wp-content/uploads/2017/07/Ostman.pdf
7. Ostman, R. & McCarthy, C. (2015). *Nano*: Creating an exhibition that is inclusive of multiple and diverse audiences. *Exhibition* 34(2), pp. 34–39. https://www.aam-us.org/wp-content/uploads/2024/04/10.EXHFall2015_Ostman_McCarthy.pdf
8. Ostman, R., Herring, B., Jackson, A., Bennett, I., & Wetmore, J. (2013). Making meaning through conversations about science and society. *Exhibition* 32(1), pp. 42–47. https://www.aam-us.org/wp-content/uploads/2024/04/10EXH_SP13_MeaningMakingThroughConversationsaboutScienceandSociety_Ostman_Herring_Jackson_Bennett_Wetmore.pdf
9. Long, S. & Ostman, R. (2012). Using theatre and film to engage the public in nanotechnology. In *Little by Little: Expansions of Nanoscience and Emerging Technologies.* H. van Lente, C. Coenen, T. Fleischer, and K. Konrad (Eds.) Heidelberg: Akademische Verlagsgesellschaft/IOS Press, pp. 59–64. https://www.researchgate.net/publication/281677663_Little_by_Little_Expansions_of_Nanoscience_and_Emerging_Technologies
10. Ostman, R. (1996/1997). “Our land is great and rich, but there is no order in it”: Re-evaluating the process of Russian state formation. *Archaeological News* 21/22, pp. 73–91.

Invited articles and chapters

1. Carfora, N., Bailey, L., Alford, K., Myllykoski, M., Ostman, R., & Martin, P. (2024). Plausible immersive futures with Seven Siblings in Finland, southern Australia, and Arizona. In K. Alford (Ed.), *Cultivating futures thinking in museums: New roles, new*

possibilities. Routledge. https://doi.org/10.4324/9781003474975-29

2. Bell, J. & Ostman, R. (In press). Informal STEM learning: Introduction and opportunities for Broader Impacts partnerships. In L. A. Van Egeren & S. Renoe, *The handbook of broader impacts. Vol. II: Practices and approaches for broader impacts.* Michigan State University Press.
3. Reich, C., Pattison, S., Olney, V., Bequette, M., Cohn, S., Kollmann, E. K., & Ostman, R. (2019). NISE Net team-based inquiry. In L. W. Martin, L. Tran, & D. Ash (Eds.), *The reflective museum practitioner: Expanding practice in science museums.* New York: Routledge, pp. 53–63. https://doi.org/10.4324/9780429025242
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Workbooks, guides, reports, and features

1. Ostman, R. (2024, September). STEM learning ecosystems. Background report included in *Building resilient communities: Exploring how libraries and community-based organizations can work together to mitigate environmental and health-related concerns due to climate change.* Prepared for Climate Action Symposium: Exploring Collaborations with Libraries, Community-Based Organizations, and Public Health Agencies. Boulder, CO: STAR Library Network. https://spacescience.org/edu/reports.php#BRC
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3. Ostman, R. (2022). Frankenstein200 project page. In *Imagination in STEM: A Project Index.* Museum of Science, Boston.
4. Weller, N., & Ostman, R. (2021). *Sustainability and museums: A workbook for improving operations, engaging communities, and creating partnerships.* Tempe, AZ: Arizona State University for the NISE Network. https://www.nisenet.org/sites/default/files/catalog/uploads/sustainability_guide_05_10r1.pdf
5. Ostman, R., Barnard, W., & Bell, L. (2018). *Informal STEM education policy. Brief submitted to the Royal Thai Government.* Bangkok, Thailand: Kenan Institute Asia.
6. Ostman, R. (2018). *Let's Do Chemistry: A framework and strategies to encourage positive attitudes toward learning chemistry in museums and informal settings. A NISE Network research to practice guide.* Tempe, AZ: Arizona State University for the NISE Network. https://nisenet.org/sites/default/files/chem_ldc_framework_and_strategies_guide.pdf
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8. Ostman, R. (2017). *National Informal STEM Education Network report to partners:*

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12. Ostman, R. (2016). *NanoDays: A NISE Network guide to creating activity kits, building community, and inspiring learning.* Saint Paul, MN: Science Museum of Minnesota for the NISE Network. https://www.nisenet.org/sites/default/files/catalog/uploads/NanoDays%20%20-%20NISE%20Network%20Guide%204-27-16.pdf

13. Ostman, R. (2016). *NISE Network program development: A guide to creating effective learning experiences for public audiences.* Saint Paul, MN: Science Museum of Minnesota for the NISE Network. https://www.nisenet.org/sites/default/files/catalog/uploads/Programs_Guide_04-06-16_HR.pdf

14. Ostman, R. (2015). *NISE Network Nano exhibition: Creating a small footprint exhibition with big impact.* Saint Paul, MN: Science Museum of Minnesota for the NISE Network. https://www.nisenet.org/sites/default/files/catalog/uploads/NISENetwork_Guide_Nano_Exhibition_04_11-15-LOWRES.pdf

15. Bequette, M., Ostman, R., Ellenbogen, K., Zenner Petersen, G., Porcello, D., Livingston, T., Johnson, M., & Martin, P. (2012). *Nanoscale science informal learning experiences: NISE Network content map.* Saint Paul, MN: Science Museum of Minnesota for the NISE Network. https://www.nisenet.org/sites/default/files/catalog/uploads/5250/nisenet_contentmap_03dec2012.pdf

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20. Ostman, R. (2009). Lessons learned from "Snowflakes—nano at its coolest." In *Universal design guidelines for public programs in science museums.* Boston, MA: Museum of Science for the NISE Network, pp. 20–21. https://www.nisenet.org/sites/default/files/catalog/uploads/2976/ud_guide_programs_11_11_print.pdf

21. Ostman, R. (2004). *The city and complexity: Volterra, Italy. Pottery production during the Hellenistic Etruscan period and the late Roman to late Antique period.* Oxford: British Archaeological Reports.

WORKSHOPS, PRESENTATIONS & POSTERS

Activities are listed in reverse chronological order. For each entry, the chair or presenting author is listed first and other presenters and authors follow in alphabetical order.

Professional Conferences

1. Ostman, R., Anderson, A., Atwood, A., & Kollmann, L. Culturally responsive evaluation: A study of four STEM learning ecosystems. Presentation at American Geophysical Union AGU 2024, Washington, DC.

2. Martin, P., & Ostman, R. (2024, December). Engaging Latiné Learners: A community of practices across six sites. Presentation at American Geophysical Union AGU 2024, Washington, DC.

3. Weller, N., & Ostman, R. (2024, December). Climate change learning and leadership through teen-led game development. Presentation at American Geophysical Union AGU 2024, Washington, DC.

4. Ostman, R. (Chair), Anderson, A., Mannis, K., & Neff, R. (2024, October). *STEM*

everywhere: Lessons from four diverse ecosystems. Workshop presented at the convening of the STEM Learning Ecosystem Community of Practice, Chicago, IL.

5. Ostman, R., & Martin, P. (2024, October.) *Mission Future* and *2175: An exhibition and XR game exploring alternative futures.* Hands-on showcase at the meeting of the Association of Science and Technology Centers, Chicago, IL.
6. Ostman, R. (2024, September.) Mission Future: Arizona 2045. Presentation in the preconference workshop *Imagining our shared, sustainable future: Building capacity to imagine, articulate, and inspire,* T. Donofrio (Chair), at the meeting of the Association of Science and Technology Centers, Chicago, IL.
7. Ostman, R. (Chair), Anderson, A., Atwood, A., & Jackson, A. (2024, September.) *Learn about, reflect on, and plan reciprocal community partnerships and authentic STEM learning experiences.* Preconference workshop presented at the meeting of the Association of Science and Technology Centers, Chicago, IL.
8. Ostman, R., & Martin, P. (2024, July). Community science leaders: Young people creating and playtesting an XR game about climate futures. Poster presented at the annual meeting of the Visitor Studies Association.
9. Kelley, A., Ostman, R., Pilarski, N., & Weller, N. (2024, June). Eco-education and sustainable youth-led futures. Workshop presented at the 2024 Games for Change Festival, New York, NY.
10. Ostman, R. (2024, May). Mission Future: Arizona 2045. Presentation in the session *Alternative realities: Shaping our collective climate future today* at the meeting of the American Alliance of Museums, Baltimore, MD.
11. Kelley, A., Stephenson, A., Zhan, C., Nair, G., Rodriguez, I., Santiago-Aguiluz, J., Rodriguez, J., Mejia Jimenez, J., Smith, L., Monjaraz, N., Roza, P., Varahagiri, S., Ostman, R., Pilarski, N., & Weller, N. (2024, January). Make games, save the planet: A teen-developed video game about drought and sustainability. Poster presented at Central Arizona-Phoenix Long-term Ecological Research (CAP LTER) All Scientists Meeting and Poster Symposium, Arizona State University, Tempe, AZ.
12. Ostman, R., & Martin, P. (2023, December). Partnerships and programs to promote inclusion and foster STEM identity for diverse learners. Presentation at American Geophysical Union (AGU) 2023, San Francisco, CA.
13. Ostman, R., & Martin, P. (2023, December). Partnerships to broaden and deepen participation of Latiné communities in Earth and space science. Presentation at American Geophysical Union (AGU) 2023, San Francisco, CA.
14. Ostman, R., & Martin, P. (2023, December). STEM engagement in informal settings. Presented in the workshop *Communicating a deeper understanding of our Earth and beyond* at American Geophysical Union (AGU) 2023, San Francisco, CA.
15. Weichselbaum, C., Anderson, A., Das, J., Porcello, D., & Ostman, R. (2023, November).

New tools for neuroethics engagement: Mutual learning through card games and more. Poster presented at the 2023 annual meeting of the Society for Neuroscience, Washington, DC.

16. Ostman, R. & Martin, P. (2023, November). A co-created exhibition and extended reality game exploring climate futures. In *Making & Doing.* Presentation at the meeting of the Society for Social Studies of Science (4S), Honolulu, HI.
17. Ostman, R. & Pilarski, N. (2023, October). A youth-created digital narrative to engage communities in climate futures. Project presented at the research showcase of the virtual Connected Learning Summit 2023.
18. Ostman, R. (2023, October). STEM learning ecosystems: Relationships, relevance, and reciprocity. In S. VanDenbergh (Chair), Relationships, relevance, and reciprocity: Shifting our institutional perspectives using a connected learning ecosystems framework. Presentation at the meeting of the Association of Science and Technology Centers, Charlotte, NC.
19. Ostman, R. (2023, October). What kind of future thinker are you? In M. Doby, (Chair), *Positioning young people as STEM change-makers for the future.* Activity presented at the meeting of the Association of Science and Technology Centers, Charlotte, NC.
20. Ostman, R. (2023, October). A youth-created digital narrative. In M. Doby, (Chair), *Positioning young people as STEM change-makers for the future.* Activity presented at the meeting of the Association of Science and Technology Centers, Charlotte, NC.
21. Ostman, R. & Pilarski, N. (2023, July). A youth-created digital narrative about the future. Paper presented at the 2023 Play Make Learn conference, Madison, WI.
22. Ostman, R., Judson, E., Martin, M., Pilarski, N., & Weller, N. (2023, July). Youth-driven game and inquiry to engage communities in climate futures. Poster presented at the virtual meeting of the Visitor Studies Association.
23. Becker, J., Jagnik, S., Muldoon, M., Ostman, R., Pilarski, N., & Vanderborght, K. (2023, July). *Prototype the future* VR game concept demonstrated in the Immersive Arcade, Games for Change 2023, New York, NY.
24. Ostman, R. (2023, June). A youth-created digital narrative to engage communities in futures scenarios. Paper presented virtually at Futures Conference 2023.
25. Ostman, R. (Chair), Anderson, A., Atwood, A., Auclair, M., Buffington, C., Cass, M., Jackson, A., Kollmann, L., Mannis, K., Martin, P., Neff, R., Peake, L., Sparrow, E., & VanDenbergh, S. (2023, May). Partnerships and programs to broaden participation in STEM: Insights from NASA's Science Activation program. Full-day design studio presented at the STEM Learning Ecosystem Community of Practice convening, Jacksonville, FL.
26. García Guerrero, M. (Chair), Ostman, R., Díaz, J., & Oliveira, D. (Discussant). (2023, April). Action networks for science communication: Building abilities for change.

Roundtable discussion at the Public Communication of Science and Technology conference, Rotterdam, Netherlands.

27. Ostman, R., & Weller, N. (2022, December). Building capacity for sustainability at museums and cultural organizations. Poster presented at the 2022 virtual NSF Nanoscale Science and Engineering Grantees Conference.
28. Bell, J. (Chair), Jackson, A., Garibay, C., Mayas, R., & Ostman, R. (2022, September). Reflections on equity: Holding a mirror to organizational practices. Session presented at the meeting of the Association of Science and Technology Centers, Pittsburgh, PA.
29. Weller, N., Dewhirst, K., Earnest, M., Mused, S., Howdyshell, M., & Ostman, R. (2022, September). Developing whole institution sustainability projects for science centers and museums. Session presented at the meeting of the Association of Science and Technology Centers, Pittsburgh, PA.
30. Ostman, R., & Weller, N. (2022, July). Strategies for impactful sustainability projects at museums and cultural organizations. Poster presented at the annual meeting of the Visitor Studies Association, Omaha, NE.
31. Thoma Emmons, C. (Chair), Foutz, S., Ostman, R., & Zalut, L. (2021, July). Productive discomfort: Exploring sensitive subject matter in evaluations. Session presented at the virtual meeting of the Visitor Studies Association.
32. Kollmann, L. (Chair), Anderson, A., Mesiti, L. A., Todd, K., & Ostman, R. (2021, May). How to make your museum great: Evaluation your team can do to improve your educational offerings. Intensive workshop presented at the virtual meeting of the Association of Children's Museums.
33. Ostman, R. (Chair), Johnston, R., Laubenthal, D., Weller, N. & Wouk, K. (2020, October). Sustainable futures: Science centers and community partners working together for people and the planet. Preconference workshop presented at the virtual meeting of the Association of Science and Technology Centers.
34. Ostman, R. (Chair), Flynn, C., Frias, D., Haahr, N., Jorge, M., Porcello, D. & Weller, N. (2020, August). Sustainable futures: Museums and communities working together. Webinar presented for the Association of Children's Museums.
35. Zirulnik, M. (Presenting Author), McCullough Cosgrove, J., & Ostman, R. (2019, November). Science and religion. Paper presented at the Religious Communication Association, Baltimore, MD.
36. Bell, J. (Chair), Barriault, C., Besley, J., Ostman, R., & Yeo, S. (2019, September). Informal STEM education and science communication: Branches of the same tree, invasive species, or complementary niches in an ecosystem? Session presented at the meeting of the Association of Science and Technology Centers, Toronto, ON, Canada.
37. Ostman, R. (Chair), Colton, J., Custer, S., Das, J., Martin, P., & Porcello, D. (2019, September). Moonshots in the museum: Creative ways to engage museum audiences

in big challenges. Session presented at the meeting of the Association of Science and Technology Centers, Toronto, ON, Canada.

38. Ostman, R. (Chair), Bishop, P., Doby, M., & Tankersley, J. (2019, September). Playing with the future: Creating exhibits and programs that immerse visitors in futures thinking. Preconference workshop presented at the meeting of the Association of Science and Technology Centers, Toronto, ON, Canada.

39. Sittenfeld, D. (Chair), Galvan, P., Hostetler, E., Kollmann, E., & Ostman, R. (2019, September). "Let's Do Chemistry": Designing and facilitating chemistry activities to increase interest, relevance, and self-efficacy. Preconference workshop presented at the meeting of the Association of Science and Technology Centers, Toronto, ON, Canada.

40. Velazquez, H. (Chair), Haupt, G., Petrich, M., & Ostman, R. (2019, September). Tinkering with maker and chemistry activity facilitation frameworks. Poster presented at the meeting of the Association of Science and Technology Centers, Toronto, ON, Canada.

41. Ostman, R. (2019, June). Sustainability in science and technology museums. In C. Paca (Convener), *Project showcase.* Presentation at the meeting of Ecsite, Copenhagen, Denmark.

42. Ostman, R. (Chair), Herring, B., Jackson, A. & Lindsey, C. (2019, May). Creating fun and guiding learning! Techniques for excellent facilitation. Session presented at the meeting of the Association of Children's Museums, Denver, CO.

43. Ostman, R. (2019, February). Putting research into practice to support positive attitudes about learning chemistry. In L. Bell (Chair), Scaling up research-based applications for better informal science communication. Symposium presented at the meeting of the American Association for the Advancement of Science, Washington, DC.

44. Ostman, R. (Chair), Colton, J., Hostetler, E., Long, S., Porcello, D., Sava, M., & Zirulnik, M. (2018, September). True stories and thoughtful conversation: Exploring science and religion in museum programs. Session presented at the meeting of the Association of Science-Technology Centers, Hartford, CT.

45. Ostman, R. (Chair), Cavalier, D., Colton, J., Cox, T., Grinnell, C., Hurst, A., LaConte, K., & La Valle, D. (2018, September). Museum and library partnerships: Hands-on STEM learning for everyone. Session presented at the meeting of the Association of Science-Technology Centers, Hartford, CT.

46. Ostman, R. (Chair), McCullough Cosgrove, J., & Zirulnik, M. (2018, July). Engaging with values and beliefs: Programs exploring science and religion. Poster presented at the meeting of the Visitor Studies Association, Chicago, IL.

47. Jackson, A. (Chair), Herring, B., Martin, P., Ostman, R., & Thompson, N. (2018, May). Best program ever! Tools and techniques to create great programs. Two-part workshop conducted at the Association of Children's Museums, Raleigh, NC.

48. Ostman, R. (2018, May). Games and STEM learning. In H. Wechsler (Chair), *What do games get us? Exploring learning research to inform our practice.* Session conducted at the American Alliance of Museums, Phoenix, AZ.
49. Ostman, R. (Chair), & Chu, S. (2018, April). Gaming in museums: How to level up your museum's public engagement. Workshop conducted at the meeting of Museums and the Web, Vancouver, BC.
50. Ostman, R. (Chair) & Wylie, R. (2018, April). Frankenstein200: Transmedia learning in creativity and responsible innovation. Demonstration session conducted at the meeting of Museums and the Web, Vancouver, BC.
51. Ostman, R. (2017, October). Data-based decision making in the NISE Network. In C. Trautmann (Chair), *The anti-fragile museum.* Session conducted at the meeting of the Association of Science-Technology Centers, San Jose, CA.
52. Ostman, R. (2017, October). Frankenstein200: Increasing learning and efficacy about emerging technologies through transmedia engagement. In J. Burba (Chair), *Happy birthday, Frankenstein!* Session conducted at the meeting of the Association of Science-Technology Centers, San Jose, CA.
53. Ostman, R. (2017, October). Museum and community partnerships. In R. Ostman (Chair), *STEM community partnerships: Strategies and resources for developing collaborations and reaching new audiences.* Session conducted at the meeting of the Association of Science-Technology Centers, San Jose, CA.
54. Ostman, R. (2017, September). Frankenstein200: Engaging the public in transmedia learning. In R. Wylie (Chair), *Narratives of science and scientists: Heroes, monsters, and victims.* Session conducted at the meeting of the Society for Social Studies of Science, Boston, MA.
55. Ostman, R. (Chair), Bennett, I., Long, S., Sittenfeld, D., & Wetmore, J. (2017, September). STS approaches to public engagement with science: Synthetic biology. In *Making & Doing.* Session conducted at the meeting of the Society for Social Studies of Science (4S), Boston, MA.
56. Ostman, R. (2017, May). Crash course in program development. In B. Herring (Chair), *Best program ever! Tools and techniques to create great programming.* Session conducted at the meeting of the Association of Children's Museums, Pasadena, CA.
57. Ostman, R. (2017, May). Museum and community partnerships. In R. Ostman (Chair), *Engaging all audiences: Partnerships and programs to reach diverse audiences.* Session conducted at the meeting of the Association of Children's Museums, Pasadena, CA.
58. Bell, L. (Chair), Martin, P., McCarthy, C., & Ostman, R. (2016, September). New national collaborative network provides opportunities for US museums and science centers on STEM topics. Paper presented at the meeting of the Association of Science-Technology Centers, Tampa, FL.

59. Ostman, R. (2016, September). NISE Network. In J. Bell (Chair), Evolving landscape of opportunity: Informal education and STEM research working together. Session conducted at the meeting of the Association of Science-Technology Centers, Tampa, FL.

60. Beard, B., Finn, E., Lande, M., Ostman, R., & Wylie, R. (2016, May). Monster collaborations: Approaching the Frankenstein bicentennial through the humanities and informal STEM learning. Paper presented at the meeting of the Humanities, Arts, Science, and Technology Alliance and Collaboratory, Tempe, AZ.

61. Ostman, R. (2016, May). Museums and community partnerships. In R. Ostman (Chair), Museums and community partnerships: Leveraging resources and increasing impact. Session conducted at the meeting of the Association of Children's Museums, Stamford, CT.

62. Ostman, R. (2016, May). NISE Net Museum & Community Partnerships project. In C. McCarthy (Chair), *Tools for collaboration: Increasing your museum's local impact through partnerships.* Session conducted at the meeting of the Association of Children's Museums, Stamford, CT.

63. Ostman, R. (2016, May). Public outreach at science museums. Paper presented at the meeting of the Materials Research Society, Phoenix, AZ.

64. Ostman, R. (Chair), Martin, P., & Patten, D. (2016, April). Using principles and tools from gaming to create innovative museum experiences. Session conducted at the meeting of Museums and the Web, Los Angeles, CA.

65. White, A. (Chair), Abelson, J., Iguiar, I., & Ostman, R. (2016, March). Materials for sustainable development—Integrated approaches. Symposium conducted at the meeting of the Materials Research Society, Phoenix, AZ.

66. Ostman, R. (Chair), Bennett, I., & Wetmore, J. (2015, October). Nano and society: Engaging the public in science, technology, and society. In *Making & Doing.* Session conducted at the meeting of the Society for Social Studies of Science, Denver, CO.

67. Ostman, R. (Chair) (2015, October). ASTC Game Jam! Using game thinking to transform science center experiences. Paper presented at the meeting of the Association of Science-Technology Centers, Montreal, Canada.

68. Ostman, R. (2015, October). Games and programs. In S. Long (Chair), *Why should I care? Making science center programs relevant to visitors.* Session conducted at the meeting of the Association of Science-Technology Centers, Montreal, Canada.

69. Ostman, R. (2015, October). NISE Network public engagement. In C. Bauedrie (Chair), *Social systems and governance.* Symposium conducted at the meeting of the Sustainable Nanotechnology Organization, Portland, OR.

70. Ostman, R. (Chair), Martin, P., & Patten, D. (2015, September). Transforming museums through gaming. Workshop conducted at the meeting of MuseumNext, Geneva,

Switzerland.

71. Ostman, R. (Chair), Ostfeld, K., & Thompson, N. (2015, May). Gaming the way to learning around the world. Session conducted at the meeting of the Association of Children's Museums, Indianapolis, IN.

72. Ostman, R. (2015, May). NISE Network. In L. Bell (Chair), Partnerships with science museums for public engagement and science communication professional development for early career scientists. Session presented at the meeting of the National Alliance for Broader Impacts Summit, Madison, WI.

73. Herring, B. (Chair), Barnes, H., Bennett, I., Dilley, K., Long, S., Ostman, R., & Wetmore, J. (2014, October). *From demonstration to conversation: Engaging visitors in technology and society.* Preconference workshop conducted at the meeting of the Association of Science-Technology Centers, Raleigh, NC.

74. Ostman, R. (2014, October). *Game design.* In R. Ostman (Chair). *Can gaming show us new ways to create exhibitions?* Session presented at the meeting of the Association of Science-Technology Centers, Raleigh, NC.

75. Ostman, R. (Chair), Ostfeld, K., & Moynihan, N. (2014, May). *Gaming the way to learning.* Session conducted at the meeting of the Association of Children's Museums, Phoenix, AZ.

76. Ostman, R. (2014, March). *ROM Game Jam! Foretelling the past.* In R. Ostman (Chair), *Centres of Discovery at the ROM: A catalyst for new ideas about community engagement.* Session conducted at the meeting of the Canadian Museums Association, Toronto, Canada.

77. Ostman, R. & Schippers, B. (2013, October). *Lessons from the ROM Game Jam and ancient arcade.* Paper presented at The Interactive and Games Conference, Gamercamp (Canada's Game Festival), Toronto, Canada.

78. Ostman, R. (2013, May). Evaluation and decision making: NISE Net. In R. Korn (Chair), *Evaluation as learning.* Session conducted at the meeting of the American Alliance of Museums, Washington, DC.

79. Ostman, R. (2013, February). Nanotechnology and society: Building societal and ethical implications into informal education. In L. Bell (Chair), *In the eye of the beholder: Engaging the public in societal implications of science.* Symposium conducted at the meeting of the American Association for the Advancement of Science, Boston, MA.

80. Ostman, R. (2012, December). *Engaging the public in the societal, ethical, and environmental implications of nanotechnology.* Paper presented at the meeting of the National Science Foundation Nanoscale Science and Engineering Grantees Conference, Arlington, VA.

81. Herring, B. & Ostman, R. (2012, November). Concepts and educational approaches for engaging the public in nanotechnology and society. In K. Chen, R. Nanjundaswamy, &

A. Ramirez (Chairs), *Communicating social relevancy in materials science and engineering education*. Symposium conducted at the meeting of the Materials Research Society, Boston, MA.

82. Ostman, R. (Chair), Barnes, H., Dilley, K., Herring, B., Jackson, A., Kusiak, F., Liljeholm, A., Long, S., Ostfeld, K., Pattison, S., & Thate, K., (2012, October). *Really great programming: Best practices in development, delivery, and evaluation.* Preconference workshop conducted at the meeting of the Association of Science-Technology Centers, Columbus, OH.

83. Ostman, R. (Chair), Bowman, S., Kusiak, F., Nardone, E., Porcello, D., (2012, October). *There's an app for that! Developing apps for science museums.* Session conducted at the meeting of the Association of Science-Technology Centers, Columbus, OH.

84. Ostman, R. (2012, October). NanoDays. In L. Bell (Chair), *Adding unfamiliar current research to science museums.* Session conducted at the meeting of the Association of Science-Technology Centers, Columbus, OH.

85. Ostman, R. (2012, May). Achieving goals related to visitor learning. In R. Ostman (Chair), *Prototyping exhibits for high impact and fun.* Session conducted at the meeting of the Association of Children's Museums, Portland, OR.

86. Ostman, R. (2012, May). 1x20. In Orselli, P. (Chair), *20x20 Portland.* Pecha kucha conducted at the meeting of the Association of Children's Museums, Portland, OR.

87. Ostman, R. (2012, February). Tapping into the resources of the NISE Network. In L. Bell (Chair), *Sharing science with the public: Resources for outreach and informal education.* Symposium conducted at the American Association for the Advancement of Science annual meeting, Washington, DC.

88. Long, S. & Ostman, R. (2011, November). Using theater and film to engage the public in nanotechnology. Plenary paper presented at the meeting of the Society for the Study of Nanoscience and Emerging Technologies, Tempe, AZ.

89. Ostman, R. (Chair). (2011, November). *Demonstrations to engage the public in nanotechnology.* Session conducted at the meeting of the Society for the Study of Nanoscience and Emerging Technologies, Tempe, AZ.

90. Ostman, R. (2011, November). NISE Network. In R. Ostman (Chair), *Engaging the Public in Nanotechnology: Strategies, Approaches, and Resources.* Panel conducted at the meeting of the Society for the Study of Nanoscience and Emerging Technologies, Tempe, AZ.

91. Ostman, R. (Chair), Barnes, H., Herring, B., Higbee, M., Jackson, A., Kusiak, F., Liljeholm, A., Long, S., Ostfeld, K., & Reich, C. (2011, October). *Really great programming: Best practices in development, delivery, and evaluation.* Preconference workshop conducted at the meeting of the Association of Science-Technology Centers, Baltimore, MD.

92. Ostman, R. (2011, October). NanoDays. In K. Ostfeld (Chair), *Indie styles that work!* Session conducted at the meeting of the Association of Science-Technology Centers, Baltimore, MD.

93. Ostman, R. (2011, October). Planning, development, and documentation. In A. Liljeholm (Chair), *Educational program development: Simple best practices for great presentations.* Session conducted at the meeting of the Association of Science-Technology Centers, Baltimore, MD.

94. Maynard, A. (Moderator), Bell, L., Erickson, B., Ostman, R., & Sutcliffe, H. (2011, September). Risk, uncertainty, and social engagement—How can we do better? Panel conducted at the symposium *Risk, uncertainty and sustainable innovation: New perspectives on emerging challenges,* Risk Science Center, University of Michigan, Ann Arbor, MI.

95. Ostman, R. (2011, May). Nano. In C. McCarthy (Chair), *Creating a comprehensive mini-exhibition.* Session conducted at the meeting of the Association of Children's Museums, Houston, TX.

96. Ostman, R. (2011, May). NanoDays: Simple STEM for 21st century learning skills. Paper presented at the Association of Children's Museums Annual Conference, Houston, TX.

97. Ostman, R. (2011, May). Sciencenter exhibits and programs. K. Ostfeld (Chair), *Implementing nano in children's museums.* Pre-conference workshop conducted at the Association of Children's Museums annual conference, Houston, TX.

98. Ostman, R. & G. Zenner Petersen. (2010, November). Content map for informal education in nanoscale science, engineering, and technology. In *Materials education development and outreach: K–grad*. Symposium conducted at the meeting of the Materials Research Society, Boston, MA.

99. Ostman, R. (2010, October). Discrepant events. In A. Fernandez (Chair), *Wow, I didn't expect that! Powerful techniques for teaching science.* Session conducted at the meeting of the Association of Science-Technology Centers, Honolulu, HI.

100. Ostman, R. (Chair). (2010, October). *Effective partnerships and networks: Making current science relevant.* Session conducted at the meeting of the Association of Science-Technology Centers, Honolulu, HI.

101. Ostman, R. (2010, October). NISE Network: Public engagement in nanoscale science, engineering, and technology. In L. Bell (Chair), *Public engagement and civic discourse: Charting a course for science centers.* Session conducted at the meeting of the Association of Science-Technology Centers, Honolulu, HI.

102. Ostman, R. (2010, October). Sciencenter and NISE Network. In R. Ostman (Chair), *Thinking big when you're a small museum.* Session conducted at the meeting of the Association of Science-Technology Centers, Honolulu, HI.

103. Ostman, R. (2010, May). Current science and global issues. In S. Long (Chair), *Bridging*

the borders: engaging visitors in global issues through innovative programming. Session conducted at the meeting of the American Association of Museums, Los Angeles, CA.

104. Ostman, R. (2010, May). *Let's get hands-on with science!* Paper presented at the Association of Children's Museums annual conference, Saint Paul, MN.

105. Ostman, R. (2010, May). Nanotechnology: Small science, big deal. In K. Ostfeld (Chair), *Big thoughts about super-small: Nano in children's museums.* Preconference workshop conducted at the Association of Children's Museums annual conference, Saint Paul, MN.

106. Long, S. & Ostman, R. (2010, March). Nanoscale science demonstrations and activities for K–12 students and museum visitors. In *Informal Education Share-a-Thon,* conducted at the meeting of the National Science Teacher Association, Philadelphia, PA.

107. Ostman, R. (Chair). (2009, November). *Engage any audience: Effective outreach strategies for nanoscience and materials education.* Panel presented at the meeting of the Materials Research Society, Boston, MA.

108. Ostman, R. (Chair). (2009, November). *Innovative ways to connect: University, museum, and public partnerships for nanoscience and materials education.* Panel presented at the meeting of the Materials Research Society, Boston, MA.

109. Goldstein, E. & Ostman, R. (Chairs). (2009, October). *Put the "M" back in STEM.* Session conducted at the meeting of the Association of Science-Technology Centers, Fort Worth, TX.

110. Ostman, R. (Chair). (2009, October). *Creative programming and current science learning.* Session conducted at the meeting of the Association of Science-Technology Centers, Fort Worth, TX.

111. Ostman, R. (2009, October). Creative STEM activities. In K. Ostfeld (Chair), *Indie style gets creative.* Session conducted at the meeting of the Association of Science-Technology Centers, Fort Worth, TX.

112. Ostman, R. (2009, October). Dragonfly TV nanosilver investigation. In C. McCarthy (Chair), *Science alliance: Advancing science communication by bridging diverse organizations.* Session conducted at the meeting of the Association of Science-Technology Centers, Fort Worth, TX.

113. Ostman, R. (Chair). (2009, October). *Public engagement in current science and global issues.* Session conducted at the meeting of the Association of Science-Technology Centers, Fort Worth, TX.

114. Ostman, R. (2009, October). Professional development for elementary school teachers. In I. Frank & R. Ostman (Chairs), *Big educational impact, small programming resources.* Session conducted at the meeting of the Association of Science-Technology

Centers, Fort Worth, TX.

115. Bell, L., Bennett, I., Kusiak, F., Long, S., Ostman, R., & Wetmore, J. (2009, September). *Nanotechnology and Society.* Demonstrations at the Pacific Science Center and the annual meeting for the Society for the Study of Nanoscience and Emerging Technologies, Seattle, WA.

116. Manner, M. & Ostman, R. (2009, May). *Dirty hands: The hands-on science impact.* Paper presented at the Association of Children's Museums annual conference, Philadelphia, PA.

117. Kimber, L. & Ostman, R. (2008, October). *Programs and partnerships on a small budget.* Paper presented at the meeting of the Association of Science-Technology Centers, Philadelphia, PA.

118. Ostman, R. (2008, October). Applying universal design guidelines. In C. Reich (Chair), *Programs that are inviting and accessible to all.* Session conducted at the meeting of the Association of Science-Technology Centers, Philadelphia, PA.

119. Ostman, R. (Chair). (2008, October). *Chemistry programs that get great reactions.* Session conducted at the meeting of the Association of Science-Technology Centers, Philadelphia, PA.

120. Ostfeld, K. & Ostman, R. (Chairs). (2008, October). *Doing Math and Science "Indie-Style."* Session conducted at the meeting of the Association of Science-Technology Centers, Philadelphia, PA.

121. Silberman, R. (Presenter), Merkel, S., & Ostman, R. (2008, July). *Activities for young children at a science museum.* Paper presented at the Biennial Conference of Chemical Education, Bloomington, IN.

122. McCarthy, C., Ostfeld, K., & Ostman, R. (2008, May). How nano exhibits and programs can foster play and promote learning. In M. Stafne (Chair). *(Math + Science) x Play = Museum Fun!* Session conducted at the meeting of the Association of Children's Museums, Denver, CO.

123. Ostman, R. (2007, October). Hands-on STEM activities. In K. Ostfeld (Chair). *Doing Science and Math—Indie Style!* Session conducted at the meeting of the Association of Science-Technology Centers, Los Angeles, CA.

124. Ostman, R. (Chair). (2007, October). *Nanoscale science program showcase.* Session conducted at the meeting of the Association of Science-Technology Centers, Los Angeles, CA.

125. Ostman, R. (2007, October). NISE Net programs. In S. Koch (Chair), *Nanotech studio tour: A showcase of stories to tell and props to help tell them.* Session conducted at the meeting of the Association of Science-Technology Centers, Los Angeles, CA.

126. Ostman, R. (2006, October). *Invigorating the front line.* Paper presented at the meeting of the Association of Science-Technology Centers.

127. Ostman, R. (2000, March). *The city and complexity: Change and continuity in Late Antique Volterra.* Paper presented at the meeting of the Society for American Archaeology, Chicago, IL.

128. Ostman, R. (1998, November). "The Tale of Bygone Years: Archaeology, nationalism, and Russian state formation." Paper presented at the meeting of the American Anthropological Association, Philadelphia, PA.

129. Ostman, R. (1997, November). *Archaeology in context: History, nationalism, and the old Russian state.* Paper presented at the 30th Annual Conference of the Archaeological Association of the University of Calgary, Calgary, Canada.

130. Gray, T., Ostman, R., & Stanislawski, B. (1997, January). *The early medieval emporium at Wolin.* Poster presented at the meeting *Medieval Europe: Brugge 1997,* Bruges, Belgium.

131. Ostman, R. (1997). *Merchant graves and identity construction at Birka, a Viking Age town.* Paper presented at the meeting Surviving at the Margins, Rutgers University, New Brunswick, NJ.

132. Ostman, R. (1996, November). *Considering technology, gender, and social status in Viking Age Scandinavia.* Paper presented at the 29th Annual Conference of the Archaeological Association of the University of Calgary, Calgary, Canada.

Invited presentations and workshops

1. Ostman, R., & Martin, P. (2025, January). Informal STEM learning. Guest presentation for *Winter School on Emerging Technologies.* Saguaro Lake Ranch, Mesa, AZ: The School for the Future of Innovation in Society with support from the National Nanotechnology Coordinated Infrastructure Coordinating Office.

2. Ostman, R. (2024, October). STEM learning ecosystems and climate action. Invited presentation for *Sustaining Ecosystems for Climate Learning and Action.* OCLC WebJunction online workshop.

3. Ostman, R. (2024, September). STEM learning ecosystems: A climate action perspective. Invited presentation for *Climate Action Symposium: Exploring Collaborations with Libraries, Community-Based Organizations, and Public Health Agencies.* Washington, DC: Space Science Institute.

4. Ostman, R. (2024, September). STEM learning ecosystems inquiry and resources. Poster presented at *Climate Action Symposium: Exploring Collaborations with Libraries, Community-Based Organizations, and Public Health Agencies.* Washington, DC: Space Science Institute.

5. Ostman, R., & Martin, P. (2024, January). Informal STEM learning. Guest presentation for *Winter School on Emerging Technologies.* Saguaro Lake Ranch, Mesa, AZ: The School for the Future of Innovation in Society with support from the National Nanotechnology Coordinated Infrastructure Coordinating Office.

6. Ostman, R. (2023, September). The National Informal STEM Education Network and the role of informal STEM learning in the nanotechnology infrastructure of the future. Panel participant for "Catalyzing Nanotechnology Education for K-to-Gray," *2023 Workshop on Nanotechnology Infrastructure of the Future.* Washington, DC: The National Academies of Sciences.
7. Ostman, R., & Martin, P. (2023, August). An extended reality (XR) game and exhibition exploring climate futures. Lecture presented at the University of Turku, Finland.
8. Ostman, R., & Martin, P. (2023, August). Building and sustaining a national network for STEM engagement: Lessons from the NISE Network. Presentation for the Finnish Science Centre Association at the Arctic Center, University of Lapland, Finland.
9. Ostman, R., & Martin, P. (2022, June). Building new knowledge and strengthening practices for informal STEM learning: Recent projects by a national network in the United States. Lecture presented at the University of Turku, Finland.
10. Ostman, R., & Martin, P. (2022, June). Inclusion and science capital. Intensive seminar for the Finnish Science Center Association at Paimion Parantola, Finland.
11. Ostman, R. & Martin, P. (2022, June). What we've learned: Reflections and suggestions for the network. Online workshop for the Finnish Science Center Association, Finland.
12. Ostman, R., & Martin, P. (2022, June). National networks for informal learning. Online workshop for the Finnish Science Center Association, Finland.
13. Ostman, R. (2021, May). Informal science education. Keynote talk for the virtual workshop *Public Engagement with Science and Philosophy of Science.* Organized by the University of Cincinnati Center for Public Engagement with Science with funding from the National Science Foundation.
14. Ostman, R., & Martin, P. (2020, January). Informal STEM learning. Guest presentation for *Winter School on Emerging Technologies.* Saguaro Lake Ranch, Mesa, AZ: The School for the Future of Innovation in Society with support from the National Nanotechnology Coordinated Infrastructure Coordinating Office.
15. Ostman, R., & Martin, P. (2019, January). Informal STEM learning. Guest presentation for *Winter School on Emerging Technologies.* Saguaro Lake Ranch, Mesa, AZ: The School for the Future of Innovation in Society with support from the National Nanotechnology Coordinated Infrastructure Coordinating Office.
16. Ostman, R. & Martin, P. (2019, May). Empowering communities to shape the future. New Tools for Science Policy Seminar Series. Center for Science, Policy & Outcomes, Arizona State University, Washington, DC.
17. Ostman, R. (2018, October). Informal STEM learning: Empowering communities to shape the future. Enlightening lunch presentation. School for the Future of Innovation in Society, Arizona State University, Tempe, AZ.
18. Devaney, S., Dzirasa, K., & Ostman, R. (Moderator). (2018, September). Alan J.

Friedman Science Center Dialogues. Moderator for plenary panel discussion at the meeting of the Association of Science-Technology Centers, Hartford, CT.

19. Ostman, R., Martin, P., & Colton, J. (2018, February). Innovation in informal STEM learning: Empowering communities to shape their own futures. Poster presented at Arizona State University Learning Innovation Showcase, Tempe, AZ.
20. Ostman, R. & Colton, J. (2017, January). Science and society: Engaging museum visitors in conversations about current research and emerging technologies. Poster presented at Arizona State University Learning Innovation Showcase, Tempe, AZ.
21. Finn, E., Gano, S., Guston, D., Lande, M., Ostman, R. (Presenter), & Wylie, R. (2016, May). Transmedia museum. Poster presented at the Center for the Advancement of Informal Science Education (CAISE) Principal Investigator meeting, Arlington, VA.
22. Bell, L., Herring, B., Martin, P., McCarthy, C., Ostman, R., & Semper, R. (2015, May). *Nanoscale Informal Science Education Network* (*NISE Network).* Poster presented at the Center for the Advancement of Informal Science Education (CAISE) Principal Investigator meeting, Arlington, VA.
23. Bell, L., Martin, P., McCarthy, C., Olney, V., Ostman, R., & Semper, R. (2014, May). *NISE Network: Building a national network, engaging the public, and increasing professional capacity.* Multiple posters presented at the Center for the Advancement of Informal Science Education (CAISE) Principal Investigator meeting, Arlington, VA.
24. Ostman, R. (2012, December). *Nanotechnology and society: Educational products and professional resources.* Poster presented at the meeting of the National Science Foundation Nanoscale Science and Engineering Grantees Conference, Arlington, VA.
25. Ostman, R. (2012, April). Developing effective hands-on learning experiences. Workshop presented at the GK–12 Fellows Program, Cornell University, Ithaca, NY.
26. Horton, L., Long, S., & Ostman, R. (2011, November). Public outreach. In R. Ostman (Chair), *Museum-research center partnerships to engage the public.* Panel conducted at the Congress on Teaching Social and Ethical Implications of Research, Arizona State University, Tempe, AZ.
27. Ostman, R. (2011, January). NISE Network: Engaging the public in nano and society experiences. Paper presented at the all-hands meeting of the Center for Nanotechnology and Society, Arizona State University, Tempe, AZ.
28. Herring, B., Horton, L., Kusiak, F., Long, S., Ostman, R., & Sittenfeld, D. (2010, May). University-museum partnerships for engaging the public in nano and society, Consortium for Science Policy Outcomes, Arizona State University, Tempe, AZ.
29. Ostman, R. (Chair). (2010, February). University-museum partnerships for engaging the public in nano and society. Tabletop salon presented at the conference *The Rightful Place of Science,* Consortium for Science, Policy & Outcomes, Arizona State University, Tempe, AZ.

30. Ostman, R. (2008, December). NISE Net programs for engaging the public in nano. Demonstration organizer and presenter. National Center for Learning and Teaching Global Workshop on Nanoscale Science and Engineering Education, Arlington, VA.

31. Koch, S., Liljeholm, A., & Ostman, R. (2007, December). *NISE Net exhibits and programs for engaging the public in nano.* Poster presented at the National Center for Learning and Teaching Workshop on Nanoscale Science and Engineering Education, Arlington, VA.

Other presentations and workshops

1. Jackson, A., Johnson, A., Kusiak, F., Leavell, C., McCarthy, C., Ostman, R., Porcello, D., Weichselbaum, C., & Weller, N. (2022, June). Reconnect and re-engage with the NISE Network. Online networking opportunity for museum educators, NISE Network.

2. Weller, N., Ostman, R., et al. (2021–2022). Sustainable museums: Sustainability Fellowship program. Online professional development fellowship for informal educators. Three cohorts of 30 educators, each participating in a six-month program. Arizona State University in partnership with the NISE Network.

3. Herring, B. (Chair), Jackson, A., Kusiak, F., Leavell, C., McCarthy, C., & Ostman, R. (2021, June). Reconnect and re-engage with the NISE Network. Online networking opportunity for museum educators, NISE Network.

4. Kollmann, L. (Chair), Anderson, A., & Ostman, R. (2021, November). Evaluating educational experiences during times of limited social interaction: Adventures in team-based inquiry. Online workshop for museum educators, NISE Network.

5. Weller, N., Ostman, R., et al. (2021, January and February). NISE Network sustainability program. Two-part online workshop for museum educators, NISE Network.

6. Weller, N., & Ostman, R. (2020, March). Building sustainable futures through museums and cultural institutions. Presentation at the Social Embeddedness Network Conference, Arizona State University, Tempe, AZ.

7. Ostman, R., Weller, N., et al. (2019–2020). Sustainable Futures: Sustainability in Science & Technology Museums Fellowship program. Blended professional development fellowship for informal educators, including online sessions, in-person intensive workshop, and online workspace. Three cohorts of 30 educators, each participating in a five-month program. Arizona State University, Tempe, AZ.

8. Sittenfeld, D. (Chair), Jackson, A., & Ostman, R. (2019, September). Making chemistry matter to your public audiences: Using hands-on activities to stimulate interest, relevance, and self-efficacy. Online professional development workshop for museum educators, NISE Network.

9. Ostman, R. (Chair), Sittenfeld, D., Beyer, M., Anderson, A., Weitzman, O., Galvan, P., Horwitz, D., & Hostetler, E. (2019, September). Explore Science: Let's Do Chemistry. Online professional development workshop for museum educators, NISE Network.

10. Ostman, R. (Chair), Horwitz, D., Sittenfeld, D., & Jackson, A. (2018, October). Celebrate National Chemistry Week. Online professional development workshop for museum educators, NISE Network.
11. Ostman, R. (Chair), Anderson, J., Benne, M., Coats, V., & Sittenfeld, D. (2018, May). Changing the conversation about climate. Online professional development workshop for museum educators, NISE Network.
12. Sittenfeld, D. (Chair), Ostman, R., & Jackson, A. (2018, April). Explore Science: Let's Do Chemistry. Online professional development workshop for museum educators, NISE Network.
13. Ostman, R. & Martin, P. (2018, January). National Informal STEM Education Network collaboration with NASA Science Mission Directorate. Presentation at NASA Headquarters, Washington, DC.
14. Ostman, R. (Chair), Colton, J., Spencer, J., Taylor, A., Cotman, E., & Fiordalis, V. (2017, December). Frankenstein200 project. Online professional development workshop for museum educators, NISE Network.
15. Ostman, R., Colton, J., Lande, M., Spencer, J., & Taylor, A. (2017, October). Frankenstein200: Museum partner workshop. Professional development workshop for 35 museum educators, San Jose, CA.
16. Ostman, R. & Martin, P. (2017, June). Innovation in informal STEM learning. Presentation at NASA Headquarters, Washington, DC.
17. Ostman, R. (2015, May). Museum and community partnerships. Workshop presented at the network-wide meeting of the NISE Network, Saint Paul, MN.
18. Ostman, R. (2015, May). Small footprint exhibitions. Workshop presented at the network-wide meeting of the NISE Network, Saint Paul, MN.
19. Ostman, R., Bennett, I., Herring, B., & Wetmore, J. (2012, December). Engaging the public in conversations about nano and society. Workshop presented at the network-wide meeting of the NISE Network, Boston, MA.
20. Barnes, H., Bennett, I., Cohn, S. Dilley, K., Hartshorn, S., Herring, B., Higbee, M., Jackson, A., Long, S., Nicholas, B., Pattison, S., Ostman, R., & Wetmore, J. (2012, September–October). Engaging visitors in nanotechnology and society. Workshops presented in Berkeley, CA, Houston, TX, Portland, OR, and Saint Paul, MN.
21. Ostman, R. (2012, January). Universal design. Presented at the program workshop for the NISE Network, Portland, OR.
22. Ostman, R. (2011, September). NISE Network update. Presented at the regional meeting for the NISE Network, Ithaca, NY.
23. Ostman, R. (2011, September). Societal and ethical implications of nanotechnologies. Roundtable presented at the regional meeting for the NISE Network, Ithaca, NY.

24. Ostman, R., Ellenbogen, K., Garcia-Luis, V., Johnson, M., Livingston, T., Martin, P., Petersen, G., Porcello, D., & Reich, C., (2011, January). Societal and ethical implications of nanotechnology. Workshop planned and delivered for the NISE Network, Portland, OR.
25. Ostman, R., Bennett, I., Correa, J., Liljeholm, A., Lisensky, G., Long, S., & Ostfeld, K. (2010, October). Nano 101. Workshop presented at the network-wide meeting of the NISE Network, San Francisco, CA.
26. Ostman, R. (2009, September). Educational products. Discussion section at the NISE Network Annual Meeting, San Francisco, CA.
27. Ostman, R. (2009, July). NISE Net programs. Workshops facilitated at the Marian Koshland Science Museum and the Diversity, Equity, and Access meeting of the NISE Network, Washington, DC.
28. Ostman, R., Grack Nelson, A., Liljeholm, A., Miller, T., Pollard, K., Zenner, G., et al. (2008, July). Planning and delivery for NISE Network regional workshops, Ithaca, NY, Portland, OR, Raleigh, NC, and Saint Paul, MN.
29. Ostman, R. (2008, March). Snowflakes to nano-ice: Universal design guidelines and techniques for making programs inclusive. Presented at the program workshop for the NISE Network, Portland, OR.
30. Ostman, R. (2007, December). Snowflakes to nano-ice: Self-assembly in nature and nanotechnology. Program presented at the NISE Network Accessible Programs Workshop, Boston, MA.

Large convenings

1. NISE Network. (2008–2009, 2010, 2011, 2012, 2013). *Regional meetings.* Hundreds of Network partners, including educators and scientists, participated in meetings held in four regions of the US. Designed to foster relationships among Network members, share practices and resources, and support participation in Network projects.
2. NISE Network. (2007, 2009, 2015, 2019, 2022). *Network-wide meetings.* National convenings for Network partners, with hundreds of participants. Designed to foster relationships among Network members, share practices and resources, and support participation in Network projects.
3. SciAct STEM Ecosystems. (2024). STEM learning ecosystems. Convenings for members of NASA's Science Activation program, with around 75 participants. Designed to foster relationships among SciAct members and share practices and resources related to broadening participation in authentic STEM engagement.

STUDENT MENTORING

Undergraduate supervision

Encinas, Z. (Fall 2021–Spring 2022). *Bee-longing in STEM: Refining and evaluating movement-based activities for bee conservation science engagement and education for middle schoolers.* Director of undergraduate honors thesis. Awarded Outstanding Graduate of Barrett, The Honors College and Dean's Medalist in English, College of Liberal Arts and Sciences, Arizona State University.

Perry, S. (Fall 2023–Spring 2024). *Applying Principles of Interpretation to Formal Geoscience Education.* Second committee member for undergraduate honors thesis. Barrett, The Honors College, Arizona State University.

Postdoctoral supervision

Weichselbaum, C. (Fall 2021–Spring 2023). Mentor for externally funded research focused on neuroscience and society through the Civic Science Fellows program. Postdoctoral research completed and successfully competed for a position as science engagement specialist at the Allen Institute.

Weller, N. (Fall 2019–Spring 2023). Mentor for externally funded research focused on sustainability in museums and similar cultural organizations. Resulted in two federally funded grants (IMLS #MG-245910-OMS-20 and NSF #2148016), multiple conference presentations, and a suite of online resources. Postdoctoral research successfully completed and advanced to assistant research professor, Arizona State University.

SERVICE

Listed in reverse chronological order by start date.

Professional service – external projects

2023- **Arizona State University and University of New Mexico**
Increasing the effectiveness of justice, equity, diversity, and inclusion-focused institutional change teams through a community of transformation (NSF #2236374 and 2236163, PI N. Kellam & PI S. Davis). Role: Participant.

2023 **Games for Change and Carnegie Mellon University Entertainment Technology Center**
XR brain jam. Role: Participant.

2022–2023 **University of Pennsylvania**
Planning grant for Dana Centers for Neuroscience & Society (Dana Foundation, PIs A. Wechsler and M. Farah). Role: Project advisor.

2022 **National Girls Collaborative Project**
Advancing the conversation on scaling national informal STEM programs (NSF #2214449, PI T. Cox). Role: Project advisor.

2022–2023 **DoSeum**
Dream tomorrow today (IMLS # MA-249635-OMS-21, PI M. Doby). Role: Project advisor

2022–2023 **BCBS Science Learning**
Empowering informal educators to prepare future wireless generations through a spectrum of STEM learning opportunities about radio (NSF #2005784, PI S. Hsi). Role: Project advisor.

2021–2023 **Civic Science Fellows Program**
Host partner and workshop discussant (July 2020)

2019–2023 **Gulf of Maine Research Institute**
LabVenture: Revealing systemic impacts of a 12-year statewide field trip program (NSF #1811452, PI L. Peake). Role: Project advisor.

2019–2023 **Museum of Science**
Interdisciplinary perspectives on imagination in informal STEM environments (NSF #1906899, PI R. Kipling). Roles: Project advisor and conference participant.

2016–2022 **Association of Science and Technology Centers**
Center for the Advancement of Informal STEM Education (NSF #1612739, PI J. Bell). Roles: Practitioner liaison (2016–2022); Facilitator, Developing and sustaining equitable, knowledge-building partnerships awardee meeting (October 2021); Workshop facilitator, Research and Practice task force (December 2019).

Professional service – meetings and workshops

2024–2025 **Arizona SciTech Institute**
National Rural STEM Summit. Role: Program committee member.

2024 **Dubai Future Foundation**
Dubai Future Forum. Role: Meeting participant.

2024 **Museum of the Future, Dubai**
Futures-Oriented Museum Synergies (FORMS). Role: Meeting participant.

2024 **Knology**
Research Infrastructure for informal STEM education (NSF #2335009, PI C. Reich). Roles: Project advisor; conference speaker/participant (October, 2024).

2023 **National Space Council**
Space STEM Forum. Role: Meeting participant.

2022 **Association of Science and Technology Centers**
Concepts and proposals for public engagement in climate change. Role: Workshop participant.

2021 **Science Public Education Partnership**
Kavli Foundation & U.S. Department of Energy
Communicating the future: Engaging the public in basic science. Roles: Review committee and meeting participant.

2020– **Association of Science and Technology Centers and Kavli Foundation**
Leaders in Science and Technology Engagement Networks (LISTEN). Role: NISE Network representative.

2020 **Association of Science and Technology Centers**
New frontiers in science, technology, learning, and community engagement toward a more equitable tomorrow. Role: Virtual national summit participant.

2020 **Association of Science and Technology Centers**
Community Science Initiative: Community science models, attributes, and principles. Role: Workshop participant.

2020 **Association of Science and Technology Centers**
Community Science Initiative: Public dialogue and deliberation. Role: Workshop participant.

2020 **Federation of American Scientists**
Science and public engagement. Day One Project in partnership with Advancing Research Impact in Society & Leaders in Science and Technology Engagement Networks, with support from Kavli Foundation. Role: Workshop participant.

2018 **Kavli Foundation, Gordon and Betty Moore Foundation, David and Lucile Packard Foundation & Rita Allen Foundation**
Connecting science engagement and communication networks. Role: Workshop participant.

2017 **Kavli Foundation, Gordon and Betty Moore Foundation, David and Lucile Packard Foundation & Rita Allen Foundation**
Support systems for scientists' communication and engagement: An exploration of the people and institutions empowering effective impact. Role: Meeting participant.

2011 **Museum of Science**
Dimensions of public engagement with science (NSF #1010831, PI L. Bell). Role: Field meeting participant.

Professional service – committees and boards

2025 **Arizona Science Center**
Renewal Advisory Group. Role: Advisor to board committee reimagining the visitor experience (conceptual design phase).

2022– **Cambridge University Press**

Cambridge Elements in Public Engagement with Science (editors-in-chief A. Potochnik & M. Jacquart, University of Cincinnati Center for Public Engagement with Science). Roles: Editorial board member (2022–) and managing editor for Volume 1 (2024).

2022–2023 **Association of Science and Technology Centers**
Leadership and Field Development Committee. Role: Committee member.

2019 **Association of Science and Technology Centers**
Dimensions. Role: Editorial board member.

2016– **Visitor Studies Association**
Board of Directors. Roles: Past president and member of board of directors (July 2019–2021); President of the board of directors (July 2017–2019); President-elect and member of board of directors (January 2016–July 2017).

Board Committees. Roles: Green team member (2019–).

2012–2016 **Materials Research Society**
Focus on Sustainability. Role: Subcommittee member.

University service and internal reviews

2025 **Arizona State University, School for the Future of Innovation in Society**
Faculty annual review committee. Role: Reviewer.

2024 **Arizona State University, School for the Future of Innovation in Society**
Faculty annual review committee. Role: Reviewer.

2024 **Arizona State University, School of Geographical Sciences & Urban Planning**
Personnel committee. Role: Ad hoc reviewer (promotion case).

2023 **Arizona State University, Leonardo-ASU Research Seed Grants**
Role: Reviewer

2021 **Arizona State University, School for the Future of Innovation in Society**
Faculty annual review committee. Role: Reviewer.

2021–2022 **Arizona State University, College of Global Futures**
Personnel committee. Role: Member.

2020–2021 **Arizona State University, Graduate College**
Interdisciplinary Enrichment Fellowship. Role: Reviewer.

2019–2020 **Arizona State University, Graduate College**
Graduate College Completion Fellowship. Role: Reviewer.

2018 **Arizona State University, School for the Future of Innovation in Society**
Faculty annual review committee. Role: Reviewer.

Federal grant review

Institute for Museum and Library Services
Museums for America and National Leadership Grants for Museums (2012, 2015, 2017)

National Institute of Health
Small Business Innovation Research and Small Business Technology Transfer (2015, 2018, 2019)

National Science Foundation
Advancing Informal STEM Learning; Discovery Research PreK-12; Racial Equity in STEM Education; and Science and Technology Centers (2011, 2022, 2023, 2023, 2024)

Journal review

Citizen Science: Theory and Practice (2019)

Community Science (2024)

Curator: The Museum Journal (2022, 2023a, 2023b)

Leonardo (2019)

Sustainability (2019, 2020)

Technovation (2024)

Visitor Studies (2024)

Professional development

2024–2025 **NASA**
Open Science 101 (online)

2021 **Lawrence Hall of Science**
Reflecting on Practice (online, Spring 2021)

2021 **Lawrence Hall of Science**
Reflecting on Practice (online, Spring 2021)

2019 **Institute for the Future**
Design Futures Training (Palo Alto, CA, December 10–11, 2019)

2017 **Research + Practice Collaboratory**
Research + Practice Workshop (Washington, DC (July 10–12, 2017)

Continuing education

2021– **Arizona State University**
Experimental Photo Processes (Fall 2024)
The Constructed Image (Spring 2024)
Digital Photo and Video (Fall 2023)
Photographing Land and Place (Fall 2023)
New Genres in Digital Photo (Summer 2023)

The Photobook (Summer 2023)
Photo Editing: Narrative/Non-Narrative (Spring 2023)
Photography and Sustainability (Fall 2022)
Digital Photography Capstone (Spring 2022)
Identity and Representation in Photography (Spring 2022)
Advanced Digital Photography (Fall 2021)
Digital Photography II (Summer 2021)
Digital Photography I (Summer, 2021)

2021– International Center of Photography
The Conceptual Landscape and Architecture Portfolio, (Summer 2024)
The Poetics of Documentary Photography (Spring 2024)
What is the Story? (Summer 2022)
Practical Guide to Creating One's Reality (Fall 2021)