

Michelle Manes, Ph.D.

☎ 808-EPSILON (808-377-4566) | ✉ michelle.manes@gmail.com | 🌐 michellemanes.github.io

EDUCATION

Brown University, Providence, RI

Ph.D., Mathematics

May 2007

- Thesis: *Arithmetic dynamics of rational maps*
- Advisor: Professor Joseph H. Silverman

Sc.M., Mathematics

May 2004

Boston University, Boston, MA

Ed.M., Deaf Education (concentration in Mathematics Education)

Jan 1993

University of California, Berkeley, Berkeley, CA

A.B., Mathematics

May 1991

ACADEMIC AND ADMINISTRATIVE EMPLOYMENT

American Institute of Mathematics, Pasadena, CA

2022 – present

Founded in 1994, AIM is now one of seven U.S. mathematical sciences research institutes supported by the National Science Foundation. AIM's mission is to advance mathematics through focused, collaborative research programs — topical workshops; small, structured research groups (SQuaREs); and large virtual research communities. Since 2023 AIM has been located on the campus of the California Institute of Technology.

Deputy Director

Jan 2022 – present

RESPONSIBILITIES: PROGRAM MANAGEMENT

- In close collaboration with the Executive Director, create, manage, and oversee current and new scientific programs and activities.
- Collaborate with the Director of Programs on supporting workshop organizers in several planning meetings before and during AIM workshops.
- Primary scientific contact for participants in more than 20 workshops and more than 60 SQuaRE programs per year.
- Collaborate with the Director of Special Projects on AIM's education and outreach activities.
- Collaborate with the Associate Director of Special Projects on the AIM / USC Math Teachers' Circle, the Caltech Math Circle, and other activities related to AIM's Southern California Joyful Math endeavors.

RESPONSIBILITIES: LEADERSHIP AND MANAGEMENT

- ◉ Primary responsibility for overseeing day-to-day program operations, including 40 weeks of in-person programs each year.
- ◉ Supervise AIM's four Pasadena-based staff as well as two remote senior staff.
- ◉ Collaborate with the Executive Director and other senior staff on hiring and staff evaluations.
- ◉ Attend Board of Trustees meetings and maintain minutes.
- ◉ Primary responsibility for planning and execution of annual Scientific Board meetings, keeping minutes, and communicating outcomes with proposers.
- ◉ Primary responsibility for planning and execution of annual Advisory Board meetings, including keeping minutes.

RESPONSIBILITIES: REPRESENTING AIM

- ◉ Represent AIM to the mathematical community at conferences, in meetings with partner organizations (including the Mathematics Institutes Directors meetings), and with funding agencies.
- ◉ Represent AIM at public events including AIM's annual Math Fair and the Public Lecture Series.
- ◉ Work with the Executive Director on representing AIM with potential external funders, including the NSF, private foundations, and potential donors.
- ◉ Regularly contribute highlights of AIM activities to the mathinstitutes.org website.
- ◉ Serve as the primary contact for AIM's partnership with the American Mathematical Society for the Joint Mathematics Meetings.

RESPONSIBILITIES: GRANTS AND DATA MANAGEMENT

- ◉ Partner with the Executive Director and other senior staff on strategic planning, fundraising, and relationships with the NSF and other funders.
- ◉ Lead proposal efforts including AIM's recent NSF award, other NSF proposals, and proposals to private foundations including the Simons Foundation.
- ◉ Partner with the Director of Special Projects on proposals to foundations to support AIM's education and outreach efforts.
- ◉ Maintain AIM's preprint list.
- ◉ Collaborate with senior staff to prepare reports to funders.

RESPONSIBILITIES: BUDGETING AND FINANCIAL STEWARDSHIP

- ◉ Collaborate with the Executive Director and the Director of Finance to create and manage the annual budget, ensuring the fiscal integrity of the organization.
- ◉ Support monitoring, evaluation, and optimization of organizational finances, particularly as it relates to scientific programs.
- ◉ Work with the Director of Finance to prepare draft budgets for grant proposals and to track spending.
- ◉ Work with Executive Director and Director of Finance to ensure compliance with funders' regulations.

ACCOMPLISHMENTS

- Major contributor to the proposal writing and co-PI on the \$12.7M NSF grant establishing AIM's Research Conference Center, "A Model for Collaboration" (2025–2030).
- Major contributor to the proposal writing and PI on the collaborative \$219,726 grant "Conference: Mathematical Sciences Institutes Diversity Initiative" (2024–2027).
- Contributed substantially to fundraising for AIM's Special Projects work, including awards from the Eli and Edythe Broad Foundation and the Maxwell/Hanrahan Foundation.
- Oversaw AIM's move to Pasadena and together with a small staff got all programs up and running in the new location, including a record number of SQuaRE meetings in the first year in Pasadena (more than 100 SQuaRE groups).
- Led the effort (including winning several small grants) to keep AIM's programs running during lapse in NSF funding in summer 2025.
- Primary writer for AIM's recent proposals to the Simons Foundation and NSF Supplement request.
- Co-editor of AIM's newsletter, *The View from AIM*, since 2024, overseeing all content (including primary responsibility for writing several articles).
- Spearheaded AIM's partnership with the Joint Mathematics Meetings.
- Spearheaded AIM's partnership with Arizona Winter School.

National Science Foundation, Washington, DC

2018 – 2021

The National Science Foundation is the federal agency supporting fundamental research and education across the sciences. Program Directors in the Division of Mathematical Sciences (DMS) steward research portfolios, lead merit review, and help to shape national funding programs.

Program Director, Division of Mathematical Sciences

Sep 2018 – Aug 2021

RESPONSIBILITIES

- Managed a portfolio of research and education awards in the Division of Mathematical Sciences including primary responsibility for over 100 proposals each year and shared responsibility for over 500 proposals each year across multiple programs.
- Worked in the Algebra and Number Theory program, the Research Experiences for Undergraduates program, the CAREER program, the Focused Research Groups program, the Research Training Groups program, and the Computational and Data-enabled Science and Engineering program.
- With each team, negotiated funding priorities and decisions to support excellent science within budget constraints.
- Organized and led merit-review panels and made funding recommendations.
- Advised principal investigators and the community on funding opportunities and proposal development.
- Represented the NSF to the mathematics community at several meetings and conferences.
- Worked with cross-program, cross-directorate, and cross-agency initiatives including GRFP review panels and serving as DMS representative to the EDU directorate.

ACCOMPLISHMENTS

- Worked with program teams to meet Government Performance and Results Act deadlines each year.
- Worked with a team to propose a new “Research Initiation” program in DMS to support investigators who have not received prior NSF funding to launch (or re-launch) their research programs and advance their careers.

University of Hawai‘i at Mānoa, Honolulu, HI

2008 – 2023

The University of Hawai‘i at Mānoa is the flagship campus of the University of Hawai‘i system: an R1 land-, sea-, and space-grant research university serving a highly diverse student body and recognized as both a Native Hawaiian-serving and an Asian American and Native American Pacific Islander-serving institution.

Professor of Mathematics

Aug 2018 – Jul 2023

Associate Professor of Mathematics

Aug 2013 – Jul 2018

Assistant Professor of Mathematics

Aug 2008 – Jul 2013

RESPONSIBILITIES

- Maintained an active research program in number theory and arithmetic dynamics.
- Taught across the undergraduate and graduate curriculum and advised doctoral and master’s students.
- Collaborated on writing and administering algebra qualifying exams most years.
- Served on departmental committees including Strategic Planning Group, Putnam exam faculty advisor, graduate committee, hiring committee, curriculum committee, and many more.
- Regularly served on graduate committees (MS and PhD) for students in the mathematics department, and served as an external committee member for six PhD students in the College of Education.
- Member of numerous university-wide committees including the Teaching Excellence selection committee, the Mathematics Teacher Education Committee, the Engaged Learning Working Group, the W-Board (reviewing Writing-intensive course proposals), the College of Natural Sciences Faculty Senate, and many more.
- Elected faculty governance included the Mathematics Department Personnel Committee.
- Consultant for the Curriculum Research and Development Group.
- Participated in the Ethnomathematics and STEM professional development institute (2014).
- Participated in the Presidential Emerging Leaders Program (2017–2018).

ACCOMPLISHMENTS

- Co-PI and lead proposal author on the \$2.2M NSF GK-12 SUPER-M partnership linking the university and Hawai‘i schools.
- Supervised five doctoral and two master’s theses to completion. All have jobs in their chosen fields.
- Regents’ Medal for Excellence in Teaching (2017) and Department of Mathematics Faculty Excellence in Teaching Award (2013).

- Founded the Math Teachers' Circle of Hawai'i and secured a series of Title IIA grants sustaining it.
- Redesigned the Mathematics for Elementary Teachers courses.
- Created an open educational resource textbook for Mathematics for Elementary Teachers.
- Spearheaded efforts and a new committee to increase the number of mathematics majors.
- Created support structures for postdocs in the department including a grant writing workshop and support for teaching.
- First faculty member to run a mentored teaching experience with advanced graduate students, helped to create and document this program for the department.
- Co-PI of the \$300K NSF grant "Building Confidence through Inquiry, Research, Community Leadership, and Engagement."

Education Development Center, Inc., Newton, MA

1993 – 2001

EDC is a private, nonprofit organization that for more than six decades has worked with partners worldwide to advance every person's journey to learn, work, and be well.

Project Director

1996 – 2001

Research Assistant and Research Associate

1993 – 1996

RESPONSIBILITIES

- Directed NSF-funded secondary mathematics curriculum and web-based materials projects.
- Managed project budgets, wrote successful grant proposals, and supervised a staff of more than ten.
- Collaborated with Center for Mathematics Education senior staff on long-range planning and vision.

ACCOMPLISHMENTS

- Co-PI and lead author on the \$900K NSF award "Developing Mathematical Research Skills."
- Senior author and developer on widely adopted secondary mathematics curricula (see Education and Other Publications).

OTHER PROFESSIONAL EXPERIENCE

- **Institute for Computational and Experimental Research in Mathematics (ICERM)**, Providence, RI — Research Fellow (Spring 2012)
- **University of Southern California**, Los Angeles, CA — Assistant Professor, non-tenure track (Aug 2007 – May 2008)
- **LearningMath** (a program of WGBH), Boston, MA — Developer (2001 – 2003)
- **PROMYS** (a program of Boston University), Boston, MA — Teacher Counselor (Summers 2001–2004, 2007)
- **City On A Hill Charter High School**, Boston, MA — Mathematics Teacher (AY 2001–2002)
- **Eureka!** (a program of Girls Inc.), Lynn, MA — Lead Teacher (Summers 1993–1995)
- **The Learning Center for Deaf Children**, Framingham, MA — Teacher (1993 – 1995)

ADDITIONAL LEADERSHIP EXPERIENCE

American Mathematical Society, Providence, RI

2020 – present

The AMS is the principal professional society for research mathematicians in the United States, dedicated to advancing research, supporting learning and careers, and building our mathematical community. The AMS serves the national and international community through its publications, meetings, advocacy and other programs.

Associate Secretary, Western Section

Feb 2023 – present

RESPONSIBILITIES

- Responsible for the scientific program of two AMS sectional meetings each year, the Joint Mathematics Meetings every four years, and occasional international meetings.
- Recruit and work with host departments for AMS sectional meetings.
- Recruit and work with special-session organizers and assemble and schedule the program.
- Oversee the Program Committee that selects Invited Address Speakers.
- Serve on AMS Council.
- Collaborate with the whole AMS Secretariat and with AMS Meetings Staff on meetings policies and procedures.

ACCOMPLISHMENTS

- Associate Secretary in charge of JMM 2024 (San Francisco) and JMM 2028 (Philadelphia). Assistant Associate Secretary for JMM 2026 (Washington, DC). Program Committee for JMM 2027 (Chicago).
- Associate Secretary in charge of the AMS Joint International Meeting at the American University of Armenia (2028).
- Spearheading new effort to incorporate professional development, enrichment, and recreational mathematics programming in the JMM exhibit hall.

La Matematica (a Springer journal)

2022 – present

La Matematica, the flagship journal of the Association for Women in Mathematics published by Springer, is a peer-reviewed journal featuring high-quality research from all areas of the mathematical sciences. The journal particularly emphasizes innovation and interdisciplinary collaboration, together with readability of articles to a general mathematical audience. Dedicated to equitable practices in publishing, its editorial board is more than 75% women and gender minorities and more than 50% researchers from minoritized ethnic and racial groups.

Co-Editor-in-Chief

Jan 2022 – present

RESPONSIBILITIES

- Oversee day-to-day operations of a research journal covering a broad array of mathematical research areas.
- Oversee editorial board in algebra and geometry, including number theory, algebraic combinatorics, topology, and related fields.
- Lead editorial decisions for submissions in algebra, geometry, and number theory and related fields.
- Ensure editors, reviewers, and authors receive clear and timely communication.

- ◉ Recruit editors and referees and oversee the peer-review process through final decisions.
- ◉ Analyze stakeholder data to ensure equitable processes and experiences and to identify areas for improvement.
- ◉ Solicit new article submissions and advertise published works.
- ◉ Oversee special and topical collections.
- ◉ Represent journal at conferences, webinars, and other venues.

ACCOMPLISHMENTS

- ◉ One of four founding editors-in-chief of the journal.
- ◉ Collaborated with other founding EiCs to develop vision for the journal rooted in principles of equity, including doubly anonymous review process, name change policy, constructive review reports, and quick turnaround (average of one month to rejection and 10 months from first submission to publication of accepted articles).
- ◉ Collaborated with other founding EiCs to develop journal processes such as assessment, recruitment of initial editorial board, scope of journal, and characteristics of successful submissions.
- ◉ Collaborated with other founding EiCs to recruit an editorial board with the greatest diversity of a research mathematics journal (more than 75% women and other gender minorities and more than 50% editors of color).
- ◉ Part of team that negotiated contract terms with publisher and liaised between AWM and publisher.
- ◉ Collaborated on developing training webinar for editors.
- ◉ Worked with publishing company staff to ensure positive experience for editors, reviewers, and authors.

Roots of Unity

2022 – present

The Roots of Unity workshop aims to support mathematics graduate students in their transition to research in the areas of combinatorics, algebra, geometry, topology, and number theory (broadly construed). Mentors guide small groups of participants in developing the skills and confidence to read research articles. Sessions on norm setting, belongingness, and professional development foster lasting community among the participants, mentors, and organizers. The workshop is designed to build a welcoming and inclusive research community, particularly supportive of women and non-binary students of color.

Co-founder and Co-organizer

2022 – present

- ◉ Worked with a team of co-organizers to conceive of the workshop model.
- ◉ Brought the program to the Math Institutes and secured funding for two instantiations through the collaborative \$219,726 grant “Conference: Mathematical Sciences Institutes Diversity Initiative” (2024–2027).
- ◉ Served as in-person organizer for 2022 workshop at Institute for Mathematics and its Applications in Minneapolis, the 2024 workshop at The Institute for Computational and Experimental Research in Mathematics, and the 2026 workshop at AIM.
- ◉ Worked with organizers of the sister Early Graduate Research workshop in applied mathematics (formerly called AMIGAS).

- Worked with organizer team to recruit mentors for each workshop, organized mentor trainings, created organizer documents and procedures for future instantiations of the workshop.
- As part of organizing team, participated in advertising the workshop to the mathematics community, selecting participants, and supporting the in-person workshop activities.
- Organized a reunion conference at AIM for the first ROU cohort and special session at an AMS Sectional Meeting for the first two ROU cohorts.

Women in Numbers

An international research network that builds research collaborations and community among women in number theory.

Chair, Steering Committee

2015 – 2019

Member, Steering Committee

2019 – present

- Co-organized two Women in Numbers research collaboration workshops at the Banff International Research Station (2011 and 2017), including writing the workshop proposal to BIRS, securing funding for participant travel, recruiting project leaders, advertising the workshops to the mathematics community, selecting participants, assigning participants to research groups, setting the conference schedule, and editing the proceedings volumes.
- Founding Chair of the Steering Committee. Organized quarterly virtual meetings to select organizers for WIN workshops, support of the launch of the Women in Numbers – Europe research conference series, and growing the research network.

Math Teachers' Circle of Hawai'i, Honolulu, HI

2011 – 2018

Math Circles are professional learning communities focused on the enjoyment of mathematical problem solving. Meetings are lively, interactive, and often "funstrating": challenging, but in a highly rewarding way.

Co-founder and Leader

2011 – 2018

- Founded and led the program and secured sustained funding including a series of state Title IIA grants and NSF funding (see Major Grants).
- Organized eight professional development sessions per year, each four hours long on a Saturday morning. Led five to eight of the mathematics sessions each year and arranged for guest facilitators to lead the remaining sessions. Topics included: optimization across the curriculum, nim and nim-like games, curvature and pizza, the pancake problem, bicycle tracks, the Massachusetts lottery scam, the Hawaiian star compass and celestial navigation, exploding dots, area formulas through paper-and-scissors constructions, traditional Hawaiian games, the mathematics behind hydrophone arrays, modeling bee populations, and much more.
- Collaborated with the Hawai'i Department of Education to offer professional development points for participating teachers.
- Grew the program from approximately twelve teachers per session in 2011 to sixty teachers per session by 2015.
- Developed a model for virtually supporting remote Math Teachers' Circles (on outer islands) connected to a "hub" circle in Honolulu.

PEER-REVIEWED RESEARCH PUBLICATIONS

- ① P. H. Lee, M. Manes, N. X. Truong, “Local fields, iterated extensions, and Julia sets,” submitted.
- ② J. Anderson, M. Manes, and B. Tobin, “Some applications of dynamical Belyi polynomials,” *La Matematica* **3** (2024), no. 3, 891–906.
- ③ A. Carter, M. Lalín, M. Manes, and A. B. Miller, “Dynamical Mahler measure: a survey and some recent results,” in *Research Directions in Number Theory*, 219–252.
- ④ A. Carter, M. Lalín, M. Manes, A. B. Miller, and L. Mocz, “Two-variable polynomials with dynamical Mahler measure zero,” *Res. Number Theory* **8** (2022), 22 pp.
- ⑤ J. Anderson, M. Manes, and B. Tobin, “Cubic post-critically finite polynomials defined over $\mathbb{Q}$,” *ANTS XIV — Proceedings of the Fourteenth Algorithmic Number Theory Symposium*, Open Book Series **4** (2020), 23–38.
- ⑥ X. Faber, M. Manes, and L. Walton, “An alternate proof of idempotent relations among periodic points and quotients,” *Journal of Number Theory* **205** (2019), 44–49.
- ⑦ R. Benedetto, P. Ingram, R. Jones, M. Manes, J. H. Silverman, and T. Tucker, “Current trends and open problems in arithmetic dynamics,” *Bulletin of the AMS* **56** (2019), no. 4, 611–685.
- ⑧ J. Juul, H. Krieger, N. Looper, M. Manes, B. Thompson, and L. Walton, “Arboreal representations for rational maps with few critical points,” in *Research Directions in Number Theory: Women in Numbers IV*, Springer (2019), 133–151.
- ⑨ M. Manes, G. Melamed, and B. Tobin, “Dessins d’enfants for single-cycle Belyi maps,” in *Research Directions in Number Theory: Women in Numbers IV*, Springer (2019), 153–159.
- ⑩ M. Manes and B. Thompson, “Periodic points in towers of finite fields for polynomials associated to algebraic groups,” *Rocky Mountain Journal of Mathematics* **49** (2019), no. 1, 171–197.
- ⑪ M. Manes and J. H. Silverman, “A classification of degree 2 semi-stable rational maps $\mathbb{P}^2 \rightarrow \mathbb{P}^2$ with large finite dynamical automorphism group,” *Annales de la Faculté des Sciences de Toulouse* (6) **28** (2019), no. 4, 733–811.
- ⑫ J. Anderson, I. Bouw, O. Edjer, N. Girgin, V. Karemaker, and M. Manes, “Dynamical Belyi maps,” in *Women in Numbers Europe 2*, Springer (2018), 57–82.
- ⑬ A. Bridy, P. Ingram, R. Jones, J. Juul, A. Levy, M. Manes, S. Rubinstein-Salzedo, and J. H. Silverman, “Finite ramification for preimage fields of postcritically finite morphisms,” *Mathematical Research Letters* **24** (2017), no. 6, 1633–1647.
- ⑭ F. Balestrieri, J. Berg, M. Manes, J. Park, and B. Viray, “Insufficiency of the Brauer-Manin obstruction for Enriques surfaces,” in *Directions in Number Theory: Proceedings of the 2014 WIN3 Workshop*, Springer (2016), 1–31.
- ⑮ I. Bouw, J. Cooley, K. Lauter, E. Lorenzo Garcia, M. Manes, R. Newton, and E. Ozman, “Bad reduction of genus-3 curves with complex multiplication,” in *Women in Numbers Europe*, Springer (2015), 109–151.
- ⑯ X. Faber, M. Manes, and B. Viray, “Computing conjugating sets and automorphism groups of rational functions,” *Journal of Algebra* **423** (2015), 1161–1190.

- ⑰ B. Hutz and M. Manes, “The field of definition for dynamical systems on $\mathbb{P}^N$,” *Bulletin of the Institute of Mathematics Academia Sinica* **9** (2014), 585–601.
- ⑱ D. Lukas, M. Manes, and D. Yap, “A census of quadratic post-critically finite rational functions defined over $\mathbb{Q}$,” *LMS J. Comput. Math.* **17** (2014), 314–329.
- ⑲ A. Levy, M. Manes, and B. Thompson, “Uniform bounds for pre-periodic points in families of twists,” *Proceedings of the AMS* **142** (2014), 3075–3088.
- ⑳ R. Jones and M. Manes, “Galois theory of quadratic rational functions,” *Comment. Math. Helv.* **89** (2014), 173–213.
- ㉑ M.-J. Bertin, A. Feaver, J. Fuselier, M. Lalín, and M. Manes, “Mahler measure of some singular $K3$ -surfaces,” in *Women in Numbers 2*, *Contemp. Math.* **606** (2013), 237–247.
- ㉒ M. Manes and Y. Yasufuku, “Explicit descriptions of quadratic maps on $\mathbb{P}^1$ defined over a field K ,” *Acta Arithmetica* **148** (2011), 257–267.
- ㉓ B. Malmskog and M. Manes, “Ramified covers of graphs and the Ihara zeta functions of certain ramified covers,” in *WIN — Women in Numbers*, *Fields Institute Communications* **60** (2011), 237–247.
- ㉔ B. Malmskog and M. Manes, “Almost divisibility in the Ihara zeta functions of certain ramified covers of $q + 1$ -regular graphs,” *Linear Algebra and Its Applications* **432** (2010), 2486–2506.
- ㉕ X. Faber, B. Hutz, P. Ingram, R. Jones, M. Manes, T. Tucker, and M. Zieve, “Uniform bounds on pre-images under quadratic dynamical systems,” *Mathematical Research Letters* **16** (2009), 87–101.
- ㉖ M. Manes, “Moduli spaces for families of rational maps on $\mathbb{P}^1$,” *Journal of Number Theory* **129** (2009), 1623–1663.
- ㉗ M. Manes, “ $\mathbb{Q}$ -rational cycles for degree-2 rational maps having an automorphism,” *Proceedings of the London Mathematical Society* **96** (2008), 669–696.

BOOKS AND EDITED VOLUMES

In addition to the volumes below, I have been a co-editor of AIM’s newsletter, The View from AIM, since 2024 (<https://aimath.org/aimnews/newsletter/>).

- ① A. Cuoco, K. Waterman, B. Kerins, E. Kaczorowski, and M. Manes, *Linear Algebra and Geometry*, AMS/MAA Textbooks, vol. 46, American Mathematical Society (2019).
- ② J. Balakrishnan, A. Folsom, M. Lalín, and M. Manes, *Research Directions in Number Theory: Women in Numbers IV*, Springer (2019).
- ③ C. David, M. Lalín, and M. Manes, *Women in Numbers 2: Research Directions in Number Theory*, *Contemporary Mathematics* **606** (2013).

EDUCATION AND OTHER PUBLICATIONS

- ① B. Donaldson, D. Farmer, S. Koutsoliotas, and M. Manes, “AIM: Building and supporting collaborative research communities,” *Math. Intelligencer* **46** (2024), no. 4, 378–392.
- ② M. Manes, “Women in Numbers: a research community,” in *Count Me In: Community and Belonging in Mathematics*, AMS (2022), 153–163.
- ③ M. Manes, “Mathematics, we have a problem,” in *A Conversation on Professional Norms in Mathematics*, AMS (2021), 49–61.
- ④ M. Manes and A. Salerno, “Being a mathematician and an activist,” *AWM Newsletter* (Feb–Mar 2018), 21–22.
- ⑤ M. Manes, “Mathematics for Elementary Teachers,” open educational resource student text and instructor notes (2013).
- ⑥ M. Manes, “Media column: blog roll,” *AWM Newsletter* **43(1)** (Jan–Feb 2013), 4–6.
- ⑦ M. Manes, “Building bridges between universities and K–12 schools,” *Notes of the Canadian Mathematical Society* **42.5** (Oct–Nov 2010), 8–9.
- ⑧ *Learning Math: Geometry*, Annenberg/CPB — multimedia online geometry course for teachers of grades K–8.
- ⑨ *IMPACT Mathematics* (one of four lead authors), Glencoe/McGraw-Hill — middle-school program focused on algebra for all students.
- ⑩ *Connected Geometry* (author team), Glencoe/McGraw-Hill — high school geometry, now part of the CME Project.
- ⑪ *Mathematical Methods in High School* (author team) — alternative pre-calculus program, now part of the CME Project.
- ⑫ A. Cuoco and M. Manes, “When memory fails: putting limitations to good use,” *Mathematics Teacher* **94.6** (2001), 489–493.
- ⑬ M. Manes, “A special case of the isoperimetric problem,” *Mathematics Teacher* **91.2** (1998), 100.
- ⑭ P. Frorer, O. Hazzan, and M. Manes, “Revealing the faces of abstraction,” *International Journal for Computers in Mathematics Learning* **2.3** (1997), 217–228.
- ⑮ M. Manes and S. Stenglein, “Projects,” *Mathematics Teacher* **89.7** (1996), 612–614.
- ⑯ E. P. Goldenberg and M. Manes, “Technology tips: entrance ramps to the information super-highway,” *Mathematics Teacher* **88.1** (1995), 56–58.
- ⑰ M. Manes, “Technology tips: a global electronic community,” *Mathematics Teacher* **87.8** (1994), 650–651.

RESEARCH SUPERVISED

Pui Hang (Donald) Lee, Ph.D., “Local fields, iterated extensions, and Julia sets.” University of Hawai‘i at Mānoa, Summer 2025.

Bella Tobin, Ph.D., “Belyi maps and bicritical polynomials.” University of Hawai‘i at Mānoa, Summer 2019.

TJ Combs, Ph.D., “Arboreal Galois representations.” University of Hawai‘i at Mānoa, Summer 2018.

Elliot Ossanna, M.A., “Pascal-like triangles and fractal dimension.” University of Hawai‘i at Mānoa, Spring 2018.

Bianca Thompson, Ph.D., “Exceptional points in arithmetic dynamics.” University of Hawai‘i at Mānoa, Spring 2015.

Diane Yap, Ph.D., “Degree 2 rational maps: potential good reduction and post-critical finiteness.” University of Hawai‘i at Mānoa, Fall 2012.

Gretel Sia, M.A., “A survey of the discrete logarithm problem.” University of Hawai‘i at Mānoa, May 2011.

AWARDS AND HONORS

Fellow of the American Mathematical Society (class of 2024)

Fellow of the Association for Women in Mathematics (class of 2020)

Regents’ Medal for Excellence in Teaching, University of Hawai‘i (2017)

AWM Service Award, Association for Women in Mathematics (2017)

Haimo Award for Distinguished College or University Teaching of Mathematics, MAA Golden Section (2015)

University of Hawai‘i Department of Mathematics Faculty Excellence in Teaching Award (2013)

Brown University Department of Mathematics Outstanding Teaching Prize (2006)

Finalist, Brown University Presidential Award for Excellence in Teaching (2005)

MAJOR GRANTS

In addition to the awards below for which I am a named PI or co-PI, I have contributed substantially to AIM’s fundraising for Special Projects work, including awards from the Eli and Edythe Broad Foundation and the Maxwell/Hanrahan Foundation.

NSF DMS Institutes Program. “American Institute of Mathematics Research Conference Center: A Model for Collaboration.” Co-PI, NSF DMS-2425344. \$12,734,998. 2025–2030.

NSF DMS Infrastructure Program. “Conference: EaGR: Early Graduate Research in Applied Mathematics.” PI, NSF DMS-2533535. \$49,975. 2025–2026.

AMS Backstop Grant to support an AIM workshop. PI. \$70,000. 2025.

NSF DMS Infrastructure Program. “Collaborative Research: Conference: Mathematical Sciences Institutes Diversity Initiative.” Co-PI, NSF DMS-2317570. \$219,726. 2026.

Simons Collaboration Grant for Mathematicians. PI. \$42,000. 2022–2027.

UHM Outreach College OER Grant. “Mathematics for Elementary Teachers.” PI. \$5,000. 2017.

NSF Division of Mathematical Sciences. “Women in Numbers 4” (participant travel). Co-PI. \$15,000. 2017.

Number Theory Foundation. “Women in Numbers 4” (travel for graduate students and young faculty). PI. \$5,000. 2017.

Clay Mathematics Institute. “Women in Numbers 4” (travel for project leaders and organizers). \$8,000. 2017.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i: Year 6.” Co-PI. \$50,382. 2016–2017.

Simons Collaboration Grant for Mathematicians. PI. \$35,000. 2015–2020.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i: Year 5.” Co-PI. \$61,390. 2015–2016.

Number Theory Foundation. “Arithmetic 2015” (travel for graduate students and young faculty). PI. \$4,000. 2015.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i: Year 4.” Co-PI. \$63,471. 2014–2015.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i: Year 3.” Co-PI. \$86,420. 2013–2014.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i: Year 2.” PI. \$62,546. 2012–2013.

NSF Division of Mathematical Sciences. “Developing a Theory of Dynamical Complex Multiplication.” PI, NSF DMS-1102858. \$99,814. 2011–2014.

Improving Teacher Quality State Grants (Title IIA). “Math Teachers’ Circle of Hawai‘i.” PI. \$72,550. 2011–2012.

AMS Simons Travel Grant (declined). \$4,000 over two years. 2012.

Number Theory Foundation. “Women in Numbers 2” (travel for graduate students and young faculty). PI. \$5,000. 2011.

NSF Graduate Teaching Fellows in K–12 Education. “SUPER-M: School and University Partnership for Educational Renewal in Mathematics.” Co-PI, NSF DGE-0841223. \$2,197,284. 2009–2014.

Association for Women in Mathematics travel grant (Women in Numbers workshop). \$1,300. 2008.

NSF Instructional Materials Development. “Developing Mathematical Research Skills.” Co-PI, NSF DRL-9818736. \$899,564. 1999–2002.

PROFESSIONAL SERVICE

Human Resources Board, American Institute of Mathematics: member (2015–2018).

AWM Fellows Selection Committee: member (2020–2022), Chair (2021–2022).

AMS Sectional Meetings Travel Grants Committee: member (2018–2021).

AWM Research Collaboration Conferences for Women Committee: Chair (2015–2018).

AWM Research Networks Committee: member (2015–2017).

AWM Meetings Committee: organizer of AWM panels at the Joint Mathematics Meetings (2016–2018).

Referee: Acta Arithmetica, Journal of Algebra and Its Applications, Algebra & Number Theory, Annales de l'Institut Fourier, Crelle, IMRN, Rocky Mountain Journal of Mathematics, Annales des Sciences Mathématiques du Québec, Involve, Proceedings of the AMS, Graphs and Combinatorics, and Experimental Mathematics.

Reviewer: AMS Mathematical Reviews.

Open-source software: contributor to Sage.

Minicourse Instructor: ICERM semester program “Complex and Arithmetic Dynamics,” Providence, RI (2012); “Summer School on Arithmetic Dynamics,” University of Georgia (2011).

Teaching Assistant: Arizona Winter School, “Number Theory and Dynamics,” University of Arizona (2010).

Judge: Association for Women in Mathematics essay contest (2011).

CONFERENCE ORGANIZATION

As Associate Secretary for the Western Section of the AMS, I am responsible for the scientific program of two AMS sectional meetings each year, the Joint Mathematics Meetings every four years, and occasional international meetings.

Selected individually organized events:

Special Session on Ethnomathematics and Place-Based Learning, AMS Western Sectional Meeting, Boise, ID (2026).

Special Session on Topics in Number Theory and Arithmetic Geometry, AMS Western Sectional Meeting, San Luis Obispo, CA (2025).

Special Session on Women in Numbers, AWM Research Symposium, Rice University, Houston, TX (2019).

Special Session on Arithmetic Dynamics, AMS Joint Central and Western Sectional Meeting, University of Hawai'i at Mānoa, Honolulu, HI (2019).

Women in Numbers 4, Banff International Research Station, Banff, Canada (2017).

The Galois Theory of Orbits in Arithmetic Dynamics, American Institute of Mathematics, San Jose, CA (2016).

Silvermania: Arithmetic 2015, Brown University, Providence, RI (2015).

Global Arithmetic Dynamics Workshop, ICERM, Providence, RI (2012).

Women in Numbers 2, Banff International Research Station, Banff, Canada (2011).

AWM panels at the Joint Mathematics Meetings on being a mathematician and an activist (2018), mentoring women (2017), and research collaboration conferences for women (2016).

SELECTED PLENARY AND INVITED TALKS

“Mahler measure and arithmetic dynamics.” Southern California Number Theory Day (2022); Oregon Number Theory Day (2021).

“Going around in circles: periodic points in dynamics.” Oregon Number Theory Day (2021).

“A census of quadratic post-critically finite rational functions defined over $\mathbb{Q}$.” Algorithmic Number Theory Symposium (ANTS XI), Gyeongju, South Korea (2014).

“Computing automorphism groups of rational functions.” International Workshop on Diophantine Problems and Arithmetic Dynamics, Seoul, South Korea (2014).

“Variations on a theme: fields of definition, fields of moduli, automorphisms, and twists.” Conference on Diophantine Problems and Arithmetic Dynamics, Taipei, Taiwan (2013); ICERM Workshop on Moduli Spaces Associated to Dynamical Systems, Providence, RI (2012).

“Arithmetic dynamics and finite fields.” Sage Days 42 (Third Women in Sage Conference), Wallace Falls Lodge, WA (2012).

“The Berkovich projective line.” Workshop in Dynamics, University of Illinois at Chicago (2010).

“Level structure on M_d and modular curves for rational maps with automorphisms.” Bellairs Workshop in Number Theory, Barbados (2010).

OUTREACH AND BROADER IMPACT

Since 2023 I have been a frequent presenter at Math Teachers’ Circles throughout Southern California and have worked with AIM staff on large public events including the annual AIM Math Fair and the AIM Public Lecture Series. Earlier outreach included founding the Math Teachers’ Circle of Hawai‘i; co-organizing “Beautiful Day of Math” events on Moloka‘i and at UH Mānoa; guest presentations for teacher circles in Denver and Albuquerque; teacher workshops across the Hawaiian Islands through the SUPER-M program; and keynote and hands-on sessions for Hawai‘i Council of Teachers of Mathematics events.