

NATALIE M. LARSON, PH.D.

Assistant Professor in the School of Engineering
Mechanical Engineering Department, Stanford University
Building 550-125, 416 Escondido Mall, Stanford, CA 94305
Email: nmlarson@stanford.edu

EDUCATION

- 9/2013-12/2018 Ph.D. Materials Science and Engineering
University of California, Santa Barbara (UCSB), Santa Barbara, CA
Advisor: Frank W. Zok
Thesis title: X-ray Computed Tomography of Microstructure Evolution during Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites
- 9/2009-6/2013 B.S. Materials Science and Engineering, Mathematics Minor, *Summa Cum Laude*
University of Washington (UW), Seattle, WA

POSITIONS HELD

- 2/2025 - present Assistant Professor by courtesy, Department of Materials Science and Engineering
- 3/2024 - present Assistant Professor, Department of Mechanical Engineering
- 3/2024 - 8/2026 Terman Faculty Fellow
- 3/2024 - 2/2027 Gabilan Faculty Fellow
- 7/2023 - 2/2024 Acting Assistant Professor, Department of Mechanical Engineering
Stanford University, Stanford, CA
- 10/2023 - 2/2024 Associate
- 5/2022 - 9/2023 Research Associate
- 5/2019 - 4/2022 Postdoctoral Fellow
School of Engineering and Applied Sciences, Jennifer A. Lewis Group
Harvard University, Cambridge, MA
- 1/2019 - 4/2019 Visiting Postdoctoral Researcher
- 1/2016 - 12/2018 Visiting Doctoral Researcher
- 10/2015 - 10/2017 Advanced Light Source Doctoral Fellow in Residence
Lawrence Berkeley National Lab (LBNL), Berkeley, CA
- 1/2019 - 4/2019 Postdoctoral Researcher
- 9/2013 - 12/2018 National Science Foundation Graduate Research Fellow, Chancellor's Fellow, and Institute for Energy Efficiency Holbrook Fellow
Materials Department, Frank W. Zok Group
University of California, Santa Barbara (UCSB), Santa Barbara, CA
- 6/2013 - 8/2013 Engineering Intern, Boeing Research & Technology, Next Generation Composites
The Boeing Company, Tukwila, WA

6/2012 - 9/2012 Engineering Intern, Boeing Research & Technology, Advanced Developmental Composites
The Boeing Company, Auburn, WA

9/2012 - 6/2013 Washington Research Foundation Fellow
3/2012 - 6/2013 Undergraduate Researcher
Department of Materials Science and Engineering, Brian Flinn Group
University of Washington, Seattle, WA

6/2011 - 9/2011 Engineering Intern, Boeing Research & Technology, Composite Fuselage Technology Group & Material Placement Technology Group
The Boeing Company, Tukwila, WA

6/2010 - 4/2011 Undergraduate Researcher
Department of Materials Science and Engineering, Brian Flinn Group
University of Washington, Seattle, WA

6/2009 - 1/2010 Undergraduate Researcher
6/2009 - 9/2009 Washington NASA Space Grant Summer Undergraduate Researcher
Department of Aeronautics and Astronautics, Automobili Lamborghini Advanced Composite Structures Lab (PI: Paolo Feraboli)
University of Washington, Seattle, WA

HONORS AND AWARDS

2024 Terman Faculty Fellow in the School of Engineering, Stanford University

2023 Gabilan Faculty Fellow, Stanford University

2023 MRS *Bulletin* Postdoctoral Publication Prize

2022 Best Presentation (Gold) award for 2022 MRS Spring Symposium *DS02: Advanced Manufactured Materials—Innovative Experiments, Computational Modeling and Applications*

2017 Graduate Excellence in Materials Science (GEMS) award – Diamond Ranking, MS&T 2017

2017 NextProf Fall Engineering Workshop at the University of Michigan

2017 Neville V. Smith Student Poster Award, First Prize, ALS User Meeting 2017

2016-2017 Advanced Light Source Doctoral Fellowship in Residence (LBNL)

2015-2016 Advanced Light Source Doctoral Fellowship in Residence (LBNL)

2013-2018 National Science Foundation Graduate Research Fellowship

2013-2018 Chancellor’s Fellowship (UCSB)

2013 Institute for Energy Efficiency Holbrook Fellowship (UCSB)

2013 Graduate fellowship offers (declined): Chancellor’s Fellowship (UC Berkeley), Hamer Graduate Fellowship (UIUC), Stanford Graduate Fellowship

2013 President’s Medalist Nominee (Selected among top 5 students at UW)

2013 Dean’s Medal for Academic Excellence (Top two students in engineering at UW)

2013 William E. Quist Award for Outstanding Academic Performance and Potential for Professional Leadership (Top student in MSE at UW)

2013 College of Engineering Community of Innovators Awardee (UW)

2013 1st Place SAMPE Student Research Symposium Speaking Contest

2013 Outstanding Female Engineer Award (UW Society of Women Engineers)

2013 1st Place SAMPE student bridge contest

2013 Undergraduate Research Conference Travel Award (UW)

2012-2013	Washington Research Foundation Fellowship (UW)
2012-2013	Patricia G. Lynch and Theodora & Eugene Russell Memorial Scholarship (UW)
2012	3 rd Place SAMPE Tech Student Poster Contest
2012	James I. Mueller Scholarship Award (UW)
2012	2 nd Place SAMPE student bridge contest
2012-2013	Washington NASA Space Grant Consortium Team Award
2012	National SAMPE Student Leader Experience Award
2011	Certificate of high scholarship (deans list every quarter, UW)
2011	Boeing Scholarship (UW)
2011	Bundy Scholarship (UW)
2011	1 st Place SAMPE student bridge contest
2010	CRC Freshman Achievement Award (Top honors chemistry student)
2010	Materials Science and Engineering Dept. Scholarship (White Scholarship, UW)
2009-2013	Washington NASA Space Grant Consortium Scholarship (UW)
2009-2013	Washington Scholars Scholarship (UW)
2009	Aerojet Scholarship (UW)
2009	Lee and Velma Blakeley Memorial Scholarship (UW)
2009	Washington NASA Space Grant Summer Undergraduate Research Award (UW)
2009-2013	College Honors Program at UW

PUBLICATIONS

REFEREED JOURNAL PUBLICATIONS

9. **Natalie M. Larson**. Opportunities at the frontier of multimaterial additive manufacturing with subvoxel control. *MRS Bulletin* (2024). ***Invited contribution from the MRS Postdoctoral Publication Prize.***
8. Mark R. O'Masta, Phuong P. Bui, **Natalie M. Larson**, Kayleigh A. Porter, Erin S. Wernick, Ekaterina Stonkevitch, Zak C. Eckel, Tobias A. Schaedler. Reinforcement induced microcracking during the conversion of polymer-derived ceramics. *Acta Materialia* **275** (2024).
7. **Natalie M. Larson**, Jochen Mueller, Alex Chortos, Zoey S. Davidson, David R. Clarke, Jennifer A. Lewis. Rotational multimaterial printing of filaments with subvoxel control. *Nature* **613**, 682–688 (2023).
6. Ehsan Hajiesmaili, **Natalie M. Larson**, Jennifer A. Lewis, David R. Clarke. Programmed shape-morphing into complex target shapes using architected dielectric elastomer actuators. *Science Advances* **8** (28), (2022).
5. **Natalie M. Larson**, William D. Summers, Frank W. Zok. Cracking during pyrolysis of preceramic polymers within glass microtubes. *Journal of the American Ceramic Society* **105**, 3211–3225 (2022).
4. **Natalie M. Larson**, Charlene Cuellar, Frank W. Zok. X-ray computed tomography of microstructure evolution during matrix impregnation and curing in unidirectional fiber beds. *Composites Part A* **117**, 243-259 (2019).
3. **Natalie M. Larson**, Frank W. Zok. Insights from *in-situ* x-ray computed tomography during axial impregnation of unidirectional fiber beds. *Composites Part A* **107**, 124-134 (2018).

2. **Natalie M. Larson**, Frank W. Zok. *In-situ* 3D visualization of composite microstructure during polymer-to-ceramic conversion. *Acta Materialia* **144**, 579-589 (2018).
1. Talita Perciano, Daniela Ushizima, Harinarayan Krishnan, Dilworth Parkinson, **Natalie M. Larson**, Daniël M. Pelt, Wes Bethel, Frank Zok and James Sethian. Insight into 3D micro-CT data: exploring segmentation algorithms through performance metrics. *Journal of Synchrotron Radiation* **24**, 1065 – 1077 (2017).

REFEREED CONFERENCE/SYMPOSIA PROCEEDINGS

5. Harold S. Barnard, A. A. MacDowell, D. Y. Parkinson, **N. M. Larson**, J. C. Peterson, F. Panerai, N. N. Mansour, Y. Gao. “Synchrotron X-ray Micro Tomography at the Advanced Light Source: In-Situ Sample Environments for Advanced Aerospace Materials,” *Microscopy and Microanalysis* **24** (S2), 444-445 (2018).
4. Harold S. Barnard, A. A. MacDowell, D. Y. Parkinson, P. Mandal, M. Czabaj, Y. Gao, E. Maillet, B. Blank, **N. M. Larson**, R. O. Ritchie, B. Gludovatz, C. Acevedo, D. Liu. “Synchrotron X-ray micro-tomography at the Advanced Light Source: Developments in high temperature in-situ mechanical testing,” *X-Ray Microscopy Conference 2016 (XRM 2016)*, *Journal of Physics: Conf. Series* **849** 012043 (2017).
3. Alastair A. MacDowell, Harold Barnard, Dilworth Y. Parkinson, Abdel Haboub, **Natalie M. Larson**, Frank Zok, Francesco Parerai, Nagi N. Mansour, Hrishikesh Bale, Bernd Gludovatz, Claire Acevedo, Dong Liu, Robert O. Ritchie. “High Temperature X-Ray Micro-Tomography,” *AIP Conference Proceedings* **1741**, 050005 (2016).
2. **Natalie M. Larson**, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn. “Influence of Matrix Resin Mechanical Properties on Mechanochromic Fluorescent Damage Probe Response,” *Technical Proceedings of SAMPE 2013*, Long Beach CA, June 6-9, 2013.
1. G. Weber, R. Toivola, **Natalie M. Larson**, B. Flinn. “Morphology-Enhanced Properties of an Interpenetrating Polymer Network Adhesive,” *Technical Proceedings of SAMPE 2011*, Long Beach CA, May 23-26, 2011.

NON-REFEREED PUBLICATIONS (DATASETS)

6. **Larson, Natalie M.**; Mueller, Jochen; Chortos, Alex; Davidson, Zoey S.; Clarke, David R.; Lewis, Jennifer A., "Source data for "Rotational multimaterial printing of filaments with subvoxel control"", Harvard Dataverse, V1, 2023. DOI: 10.7910/DVN/QUB4AV
5. **Larson, Natalie M.**; Williams, John W.; Zok, Frank W., XCT dataset for "Cracking during pyrolysis of preceramic polymers within glass microtubes", *Materials Data Facility*, 2021. DOI: 10.18126/arsd-bmhw
4. **Larson, Natalie M.**; Zok, Frank W., X-ray computed tomography dataset for in-situ 3D visualization of composite microstructure during polymer-to-ceramic conversion in uncoated fiber beds, *Materials Data Facility*, 2020. DOI: 10.18126/wr84-hg0a

3. **Larson, Natalie M.;** Zok, Frank W., Ex-situ XCT dataset for "X-ray computed tomography of microstructure evolution during matrix impregnation and curing in unidirectional fiber beds", *Materials Data Facility*, 2019. DOI: 10.18126/M2QM0Z
2. **Larson, Natalie M.;** Zok, Frank W., In-situ XCT dataset for "Insights from in-situ X-ray computed tomography during axial impregnation of unidirectional fiber beds" and "X-ray computed tomography of microstructure evolution during matrix impregnation and curing in unidirectional fiber beds", *Materials Data Facility*, 2019. DOI: 10.18126/M2V937
1. **Larson, Natalie M.;** Zok, Frank W., XCT dataset for "In-situ 3D visualization of composite microstructure during polymer-to-ceramic conversion", *Materials Data Facility*, 2019. DOI: 10.18126/M20355

NON-REFEREED PUBLICATIONS (CODE)

1. John W. Williams, **Natalie M. Larson**, "SampleSlicer: Graphical transformation of 4D tomographic data," *Zenodo*, (2022), <https://doi.org/10.5281/zenodo.5523256>

NON-REFEREED PUBLICATIONS (MAGAZINES)

1. **Natalie M. Larson**, "Developing ceramic-matrix composites for more efficient gas turbine engines," *American Ceramic Society Bulletin*, Vol. 95, No. 5 (2016).

NON-REFEREED CONFERENCE/SYMPOSIA PROCEEDINGS

1. **Natalie M. Larson**, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn. "Effect of Matrix Resin Properties on Activity of a Mechanochromic Fluorescent Probe for use in a novel Non-Destructive Inspection Technique for Aerospace Polymer Matrices," *13th International Symposium on Nondestructive Characterization of Materials (NDCM-XIII) Proceedings*, 20-24 May 2013, Le Mans, France.

PATENTS

1. **Natalie M. Larson**, Jochen Mueller, Jennifer A. Lewis, "Printhead and method of printing multimaterial filaments including oriented, twisted and/or helical features," Patent No.: US 12,005,631 B2, Date of Patent: June 11, 2024. (Harvard University ref. 8294)

INVITED SPEAKER

20. Natalie M. Larson, "Opportunities at the frontier of multimaterial additive manufacturing with subvoxel control." July 10, 2025, Livermore, CA, Lawrence Livermore National Laboratory.
19. Natalie M. Larson (*Panelist*), Volumetric Additive Manufacturing (VAM) Symposium, "VAM as a Research Tool.", Berkeley, CA, January 30, 2025.
18. Natalie M. Larson, "Multimaterial Additive Manufacturing with Subvoxel Control", Lewis Lab 3(60) Celebration: All Around the Material World, Boston, MA, Dec 5, 2024.

17. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." September 19, 2023, Berkeley, CA, Lawrence Berkeley National Laboratory.
16. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." April 26, 2023, Urbana, IL, University of Illinois Urbana-Champaign.
15. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." March 17, 2023, Davis, CA, University of California Davis.
14. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." March 13, 2023, Cambridge, MA, Massachusetts Institute of Technology.
13. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." February 16, 2023, Urbana, IL, University of Illinois Urbana-Champaign.
12. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." February 2, 2023, Stanford, CA, Stanford University.
11. Natalie M. Larson, "Advancing composite & multimaterial manufacturing via in-situ tomography and rotational multimaterial 3D printing." January 24, 2023, Lausanne, Switzerland, École Polytechnique Fédérale de Lausanne (EPFL).
10. Natalie M. Larson, "X-ray computed tomography of microstructure evolution during processing of ceramic matrix composites." June 19, 2019, Dayton, OH, Air Force Research Laboratory.
9. Natalie M. Larson, "X-Ray Computed Tomography of Microstructure Evolution During Processing of Ceramic Matrix Composites", Materials Research Outreach Symposium (MROP), Santa Barbara, CA, January 30, 2019.
8. Natalie M. Larson, "X-ray computed tomography of microstructure evolution during polymer impregnation and pyrolysis processing of ceramic matrix composites." Nov 15, 2018, Oak Ridge, TN, Oak Ridge National Laboratory.
7. Natalie M. Larson, "In-situ X-ray computed tomography of microstructure evolution during processing of composite materials", Image Processing Across Domains (ImageXD) Workshop, Berkeley Institute for Data Science, Berkeley, CA, May 17, 2018.
6. Natalie M. Larson (*Panelist*), Image Processing Across Domains (ImageXD) Workshop, Berkeley Institute for Data Science, Berkeley, CA, May 17, 2018.
5. Natalie M. Larson, Frank W. Zok, "In-situ Characterization of Defect Evolution in Polymer Impregnation and Pyrolysis (PIP) Processing of Ceramic Matrix Composites (CMCs)." Jan 8, 2018, HRL Laboratories, Malibu, CA.
4. Natalie M. Larson, Frank W. Zok, "Characterization of defect evolution in ceramic matrix composite processing via *in-situ* x-ray computed tomography," Advanced Light Source (ALS) User Meeting, Berkeley, CA, October 4, 2017.

3. Natalie M. Larson, Frank W. Zok, “Characterization of defect evolution in ceramic matrix composite processing via *in-situ* x-ray computed tomography,” Advanced Light Source (ALS) User Meeting, Berkeley, CA, October 3, 2017. ***(Plenary talk, Student Poster Winner Talk)***
2. Natalie M. Larson, “In-situ Characterization of Defect Evolution in Polymer Impregnation and Pyrolysis (PIP) Processing of Ceramic Matrix Composites (CMCs).” April 25, 2017, Spark Thermionics, Lawrence Berkeley National Lab.
1. Natalie M. Larson, Frank W. Zok, “In-situ X-ray Computed Tomography of Defect Evolution in Polymer Impregnation and Pyrolysis Derived Ceramic Matrix Composites,” Advanced Light Source (ALS) User Meeting, Berkeley, CA, October 5, 2016.

CONTRIBUTED PRESENTATIONS

AS FACULTY

(Includes talks and posters by N. M. Larson and trainees. Speaker indicated with asterisk ().)*

1. *(Poster)* Sofia Madrigal Gamboa*, David Kilian, Natalie Larson, Sarah Heilshorn, “Multimaterial Core–Shell Bioprinting to Fabricate Cultivated Meat Scaffolds,” Biofabrication 2025, Warsaw, Poland, Sept 14-17, 2025.

PRE-FACULTY

(Includes only talks and posters with N. M. Larson as speaker)

34. *(Poster)* Natalie M. Larson*, Jochen Mueller, Alex Chortos, Zoey S. Davidson, David R. Clarke, Jennifer A. Lewis, “Multi-material rotational 3D printing of architected filaments and lattices with programmable sub-voxel control,” Gordon Research Conference on Additive Manufacturing of Soft Materials, Ventura, CA, Aug 7-12, 2022. *(Poster)*
33. *(Talk)* Natalie M. Larson*, Jochen Mueller, Alex Chortos, Zoey S. Davidson, David R. Clarke, Jennifer A. Lewis, “Multi-material rotational printing of architected filaments and lattices with programmable sub-voxel control”, Materials Research Society (MRS) Spring Meeting, Honolulu, Hawaii, May 11, 2022.
32. *(Talk)* Natalie M. Larson*, Jochen Mueller, Alex Chortos, Zoey S. Davidson, David R. Clarke, Jennifer A. Lewis, “Multi-material rotational printing of architected filaments and lattices with programmable sub-voxel control”, NEW.Mech, Teaser Talk, Cambridge, Massachusetts, May 6, 2022.
31. *(Talk)* Natalie M. Larson*, Jochen Mueller, Alex Chortos, Zoey S. Davidson, Jennifer A. Lewis, “Multi-Material Rotational Direct Ink Writing”, Materials Research Society (MRS) Fall Meeting, Boston, Massachusetts, December 1, 2021.
30. *(Talk)* Natalie M. Larson*, Harold Barnard, Dilworth Parkinson, Alastair MacDowell, Charlene Cuellar, Richard Sim, Frank Zok, “In-Situ Synchrotron X-ray Micro-tomography of Microstructure Evolution during Ceramic Matrix Composite Processing”, 4th International Congress on 3D Materials Science (3DMS 2018), Helsingor (Elsinore), Denmark, June 11, 2018.

29. *(Poster)* Natalie M. Larson*, Charlene Cuellar, Richard Sim, Dilworth Y. Parkinson, Alastair A. MacDowell, Harold S. Barnard, Frank W. Zok, "Analysis of *In-situ* Synchrotron X-ray Computed Tomography Images: Microstructure Evolution During Processing of Ceramic Matrix Composite Materials," Conference on Data Analysis, Santa Fe, New Mexico, March 7, 2018.
28. *(Talk)* Natalie M. Larson*, Frank W. Zok. "In-situ Characterization of Defect Evolution in Polymer Impregnation and Pyrolysis (PIP) Processing of Ceramic Matrix Composites (CMCs)." Jan 12, 2018, Santa Barbara, CA, Structural Seminar, University of California Santa Barbara.
27. *(Poster)* Natalie M. Larson*, Frank W. Zok, "*In-situ* X-ray Computed Tomography of Defect Evolution During Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites," UCSB Winter Study Group on High Performance Materials, Santa Barbara, CA, Jan 9-10, 2018.
26. *(Talk)* Natalie M. Larson*, Frank W. Zok, "*In-situ* XCT of crack evolution during pyrolysis of precursor impregnation and pyrolysis (PIP)-derived ceramic matrix composites (CMCs)," Materials Science & Technology (MS&T) 2017, Pittsburgh, PA, October 11, 2017.
25. *(Talk)* Natalie M. Larson*, Frank W. Zok, "Impregnation of precursors into fiber beds for precursor impregnation and pyrolysis (PIP)-derived ceramic matrix composites (CMCs)," Materials Science & Technology (MS&T) 2017, Pittsburgh, PA, October 11, 2017.
24. *(Poster)* Natalie M. Larson*, Frank W. Zok, "In-situ X-ray Computed Tomography of Defect Evolution During Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites," Advanced Light Source (ALS) User Meeting, Berkeley, CA, October 2, 2017.
23. *(Poster)* Natalie M. Larson*, Frank W. Zok, "In-situ X-ray Computed Microtomography of Defect Evolution in Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites," Basic Energy Sciences Triennial Review, Advanced Light Source, Berkeley, CA, March 21, 2017.
22. *(Talk)* Natalie M. Larson*, Frank W. Zok. "In-situ Characterization of Defect Evolution in Polymer Impregnation and Pyrolysis (PIP) Processing of Ceramic Matrix Composites (CMCs)." March 10, 2017, Santa Barbara, CA, Structural Seminar, University of California Santa Barbara.
21. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, "Shrinkage crack evolution during 1st pyrolysis in polymer impregnation and pyrolysis processing of ceramic matrix composites," Materials Science & Technology (MS&T) 2016, Salt Lake City, UT, October 26, 2016.
20. *(Poster)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, "In-situ X-ray Computed Micro-tomography of Defect Evolution in Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites," Advance Light Source (ALS) User Meeting, Berkeley, CA, October 3, 2016.
19. *(Talk)* Natalie M. Larson*, Frank W. Zok. "In-situ X-ray Computed Tomography of Defect Evolution in Polymer Impregnation and Pyrolysis Derived Ceramic

Matrix Composites.” Sept 22, 2016, Berkeley, CA, Experimental Systems Group Staff Meeting, Lawrence Berkeley National Lab.

18. *(Poster)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “In-situ X-ray Computed Micro-tomography of Defect Evolution in Polymer Impregnation and Pyrolysis Processing of Ceramic Matrix Composites,” Gordon Research Conference on Solid State Studies in Ceramics, Mount Holyoke, MA, July 30-Aug 4, 2016.
17. *(Talk)* Natalie M. Larson*, Frank W. Zok, “Infiltration Kinetics and Defect Evolution during 1st Infiltration in Polymer Impregnation and Pyrolysis processing of Ceramic Matrix Composites,” 9th International Conference on High Temperature Ceramic Matrix Composites (HTCMC) 2016, Toronto, Canada, June 29, 2016.
16. *(Talk)* Natalie M. Larson*, Alastair A. MacDowell, Dilworth Parkinson, Carlos G. Levi, Frank W. Zok, “In-situ high temperature x-ray computed micro-tomography of ceramic matrix composite processing,” The Minerals, Metals & Materials Society (TMS) Annual Meeting & Exhibition, 2016, Nashville, Tennessee, USA, February 16, 2016.
15. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “In-situ X-ray Computed Micro-tomography of Defect Evolution in Polymer Impregnation and Pyrolysis Derived Ceramic Matrix Composites,” 40th International Conference and Expo on Advanced Ceramics and Composites (ICACC) 2016, Daytona Beach, Florida, USA, January 27, 2016.
14. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “In-situ evaluation of defect evolution in polymer impregnation and pyrolysis derived ceramic matrix composites,” Materials Science & Technology (MS&T) 2015, Columbus, Ohio, USA, October 6, 2015.
13. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “In-situ evaluation of defect evolution in polymer impregnation and pyrolysis derived ceramic matrix composites,” 11th International Conference of Pacific Rim Ceramic Societies (PACRIM11), Jeju Island, South Korea, September 2, 2015
12. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok. “In-situ evaluation of defect evolution in polymer impregnation and pyrolysis derived ceramic matrix composites.” April 10, 2015, Santa Barbara, CA, Structural Seminar, University of California Santa Barbara.
11. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “Defect evolution during polymer infiltration and pyrolysis processing of ceramic matrix composites,” International Conference on Advanced Ceramics and Composites (ICACC) 2015, Daytona Beach, FL, USA, January 28, 2015
10. *(Talk)* Natalie M. Larson*, Carlos G. Levi, Frank W. Zok, “Defect evolution during polymer infiltration and pyrolysis processing of ceramic matrix composites,” Materials Science & Technology (MS&T) 2014, Pittsburgh, PA, USA, October 15, 2014
9. Natalie M. Larson, Carlos G. Levi, Frank W. Zok. “Matrix Concepts and Processing Protocols for Robust SiC-Based CMCs.” April 4, 2014, Santa Barbara, CA, Structural Seminar, University of California Santa Barbara.

8. *(Poster)* Natalie M. Larson*, Rebecca B. Reitz*, Frank W. Zok, Carlos G. Levi, “Matrix Concepts and Processing Protocols for Robust SiC-Based CMCs,” UCSB Winter Study Group on High Temperature Coatings, Santa Barbara, CA, Jan 7, 2014
7. *(Talk)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Influence of Matrix Resin Mechanical Properties on Mechanochromic Fluorescent Damage Probe Response,” 13th International Symposium on Nondestructive Characterization of Materials (ISNDCM), Le Mans, France, May 20-25, 2013
6. *(Poster)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Effect of Matrix Resin Properties on Activity of a Mechanochromic Fluorescent Probe for use in a novel Non-Destructive Inspection Technique for Aerospace Polymer Matrices,” UW Undergraduate Research Symposium, Seattle, WA, May 17, 2013.
5. *(Talk)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Influence of Matrix Resin Mechanical Properties on Mechanochromic Fluorescent Damage Probe Response,” Society for the Advancement of Material and Process Engineering (SAMPE) 2013, Long Beach, CA, May 9, 2013
4. *(Talk)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Influence of Matrix Resin Mechanical Properties on Mechanochromic Fluorescent Damage Probe Response,” Society for the Advancement of Material and Process Engineering (SAMPE) 2013 Student Research Symposium, Long Beach, CA, May 7, 2013
3. *(Talk)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Novel Mechanochromic Probe for NDI of Aerospace Polymer Composite Matrices,” JEC Europe 2013, Paris, France, March 12, 2013
2. *(Poster)* Natalie M. Larson*, Ryan E. Toivola, Zhengwei Shi, Sei-Hum Jang, Alex Jen, Gary Georgeson, Brian D. Flinn, “Effect of Epoxy Modulus on Activity of a Fluorescent Probe Molecule for use in a Novel Non-Destructive Inspection Technique for Aerospace Composite Parts,” SAMPE Tech 2012 Student Poster Session, Charleston, SC, October 2012.
1. *(Poster)* Natalie M. Larson*, Paolo Feraboli, “Damage Resistance of Carbon Composites,” UW Undergraduate Research Symposium, Seattle, WA, May 2010.

EXPERIMENTAL RESOURCE ALLOCATIONS

4. Mark R. O’Masta, **Natalie M. Larson**, Tobias A. Schaedler, Zak C. Eckel, “Pyrolysis of 3D Printed Pre-Ceramic Polymer Composites”, Lawrence Berkeley National Laboratory (LBNL), Advanced Light Source, Beamline 8.3.2, Fall 2018.
3. **Natalie M. Larson**, Frank W. Zok, “In-situ evaluation of defect evolution during polymer impregnation and pyrolysis processing of SiC/SiC ceramic matrix composites”, Lawrence Berkeley National Laboratory (LBNL), Advanced Light Source, Beamline 8.3.2, Spring 2016.

2. Rebecca Reitz, **Natalie M. Larson**, Frank W. Zok, Carlos G. Levi, “Microstructure evolution during reactive melt infiltration of Si alloys into C-containing ceramic composite preforms”, Lawrence Berkeley National Laboratory (LBNL), Advanced Light Source, Beamline 8.3.2, Fall 2014.
1. **Natalie M. Larson**, Frank W. Zok, “Pore evolution during pyrolysis of SiC precursors within SiC fiber preforms”, Lawrence Berkeley National Laboratory (LBNL), Advanced Light Source, Beamline 8.3.2, Spring 2014.

PROFESSIONAL SERVICE & OUTREACH

JOURNAL PAPER REVIEWER (ALPHABETICAL)

Acta Materialia, Composites Part A, International Journal of Applied Ceramic Technology, International Journal of Heat and Mass Transfer, Journal of Composite Materials, Journal of the American Ceramic Society, MRS Communications, Scripta Materialia

CONFERENCE PAPER REVIEWER

Symposium on Computational Fabrication

GRANT REVIEWER

Army Research Office

CONFERENCE ORGANIZER

2017-2018 Co-chair – 2018 TMS Summit on Diversity in the Minerals, Metals and Materials Professions 3
Sub-committee leader – Practice on the Professional Level-Students

SYMPOSIUM ORGANIZER

2015-2016 Symposium co-organizer - Natalie Larson, Wennie Wang and David Hwang, “Transforming the Diversity Landscape”, TMS 2016

DISCUSSION LEADER

7/2016 Discussion Leader, Gordon Research Seminar on Solid State Studies in Ceramics - Microstructure Fundamentals and Characterization, July 30-31, 2016

COMMITTEES, COUNCILS, LEADERSHIP

9/2020 - 5/2023 Member – **Harvard SEAS Committee on Diversity, Inclusion, and Belonging**
10/2020 - 12/2020 Data transparency team
11/2021 - 5/2023 Harvard SEAS climate survey working group

2018 - 2021 Member – **TMS Diversity Committee**
9/2018 - 8/2021 Member and co-founder – TMS PRIDE Working Group
Co-chair – Policy committee

11/2020 – 8/2021 Chair – TMS Access, Inclusion, and Engagement Policy Working Group
11/2018-8/2021 Member and co-founder – TMS Access, Inclusion, and Engagement Policy Working Group

7/2017-2019 Councilmember - **Advanced Light Source Diversity and Inclusion council**

2015-2017 Delegate – **American Ceramic Society’s President’s Council of Student Advisors**

2016-2017 Engineering Ceramics Divisional Delegate

2011-2013 Member – **Society for the Advancement of Material and Process Engineering**

2012-2013 President of University of Washington Student Chapter

2011-2012 Vice president of University of Washington Student Chapter

OUTREACH

1/9/2025 Invited speaker – Seminar series ENGR311A: “Perspectives of Women in Engineering”, Stanford Mechanical Engineering Women and Gender Minorities Group (MEGM)

8/13/2024 Panelist – Early Career Panel Discussion, ALS User Meeting, Berkeley, CA

4/14/2024 Panelist – Society of Women Engineers Next (SWENext) chapter at Amador Valley High School, Introduction to Engineering day

12/4/2022 Volunteer – Harvard Holiday Lecture for Families

5/19/2021 Outreach Volunteer -- Virtual lecture & lab tour for 5th grade science virtual cohort (LEAD public schools, LEAD southeast middle school)

10/29/2020 Panelist – “Statement of Purpose and Letters of Recommendation” Graduate School Application Workshop presented by the Harvard Paulson SEAS office of Diversity, Inclusion and Belonging and Harvard Earth and Planetary Science

5/24/2019 Outreach volunteer – Cambridge 8th Grade Science & Engineering Showcase

4/19/2018 Outreach volunteer – American Association of University Women Tech Trek

3/27/2018 Outreach volunteer – ALS Experience with Harding Elementary 5th grade class.

2/2018 Outreach volunteer – ALS Experience with Oakland Unified School District

7/2016 Invited plenary co-speaker – Natalie Larson, Wennie Wang and David Hwang, “Highlights from “Transforming the Diversity Landscape” Symposium: The Importance of Empathy on the Individual and Program Levels”, Diversity in the Minerals, Metals, and Materials Professions 2 (DMMM2), Evanston, IL

2013-2016 Member - UCSB GSDS (Graduate Students for Diversity in Science)

2014-2016 Professor contact, outreach division (leadership committee)

2011-2013 UW Engineering Discovery Days Outreach Event Volunteer

2010-2011 Volunteer Note-taker for Disability Resources for Students

UNIVERSITY SERVICE

7. **Defense Committee Member (non-reader or chair)** (Spring 2025 – present), 2 completed, Stanford Bioengineering, Chemistry

6. **Doctoral Academic Advisor** (Fall 2024 – present), 3 students, Stanford Mechanical Engineering
5. **Undergraduate Major Academic Advisor** (Fall 2024 – present), 7 students, 1 honors thesis, Stanford Mechanical Engineering
4. **Coterm/Masters Academic Advisor** (Fall 2024 – present), 14 students, Stanford Mechanical Engineering
3. **Dissertation Reading Committee Member** (Summer 2024 – present), 1 current, Stanford Mechanical Engineering (ME)
2. **Departmental Qualifying Exams, Examiner** (Spring 2024 – present), 3 research qualifying exams completed, Stanford Mechanical Engineering (ME).
1. **Stanford Mechanical Engineering Conference (MECON), Faculty Mentor** (Spring 2024).

INSTRUCTION AND COURSE DEVELOPMENT

4. **ME 338: Continuum Mechanics.**
Stanford University: Spring 2025 (13 students)
3. **ENGR 14: Introduction to Solid Mechanics (Undergraduate Required Course).**
Stanford University: Winter 2025 (57 students)
2. **ME 395: Solid Mechanics Seminar.**
Stanford University: Fall 2024 (21 students), Winter 2025 (18 students), Spring 2025 (14 students)
1. **ME 321: Multimaterial Additive Manufacturing (new course).**
Stanford University: Fall 2024 (24 students)

RESEARCH TRAINEES

Doctoral and Pre-doctoral students

2. Luca De Donno, Ph.D. Student, Stanford Mechanical Engineering, expected 2029. (Fall 2025 – present)
1. Sofia Madrigal Gamboa, Ph.D. Candidate, Stanford Mechanical Engineering, expected 2028. Stanford Graduate Fellow, EDGE Fellow. Co-advised with Sarah Heilshorn. (Spring 2024 – present)

Masters Thesis/Research Students

3. Sunny Leung, Master's Student, Stanford Mechanical Engineering. (Spring 2025)
2. Luca De Donno, Master's Student, Stanford Mechanical Engineering. (Fall 2024 – Summer 2025)
1. Haotong Han, Master's student, Stanford Mechanical Engineering. (Spring 2024)

Undergraduate Students

8. Bernard Etcheverry, Stanford University, Undergraduate Researcher, Stanford SURI program, Spring 2025 – present
7. Henry Kasulka, Stanford University, Undergraduate Researcher, Stanford SURI program, Spring 2025 – present
6. Sirui Chris Guo, Stanford University, Undergraduate Researcher, Winter 2025
5. David Bershadsky, Princeton University, Harvard REU Program, Summer 2021
4. Julia Carmen Hestenes, University of California Berkeley, Undergraduate researcher at Lawrence Berkeley National Laboratory, June 2017 – October 2019
3. Richard Sim, University of California Berkeley, Lawrence Berkeley National Laboratory Cal Energy Corps Intern Program, Summer 2016.
2. Charlene Cuellar, University of California San Diego, Lawrence Berkeley National Laboratory SULI Program, January 2016 – June 2016
1. Jana Staudt, Saarland University, UCSB CISEI Program, Summer 2014