Bruce Edward Kirkpatrick
University of Colorado

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bruce.e.kirk@gmail.com
@bruceekirk

Education

2018-2027 **MD-PhD student, Medical Scientist Training Program**
University of Colorado Anschutz Medical Campus

2020-2025 **PhD student, Biological Engineering**
University of Colorado Boulder
Advisor: Kristi S. Anseth; thesis topic: photoresponsive hydrogel biomaterials

2013-2017 **BS, Chemical and Biological Engineering** with honors
University of Colorado Boulder
Minor in Business Analytics
Leeds School of Business

Professional Experience

2017-2018 **Professional research assistant, iC42 Clinical Research and Development**, CU Anschutz
Investigated metabolomic signatures of aging, injury, drug toxicity, and transplant function.

2016-2017 **Undergraduate research assistant, Jeerage lab** (material measurement), NIST
Developed a non-destructive assay for quantification of gold nanoparticle uptake in live cells.

2014-2016 **Undergraduate research assistant, Goodwin lab** (polymer science), CU Boulder
Synthesized novel anthraquinone derivatives for mechanically responsive polymeric materials.

2015 **Undergraduate research assistant, Weiser-Evans lab** (nephrology), CU Anschutz
Studied effects of PTEN loss on smooth muscle actin expression in atherosclerotic lesions.

2014-2015 **Undergraduate research assistant, Moulton lab** (cardiology), CU Anschutz
Treated single cells and mice with Nrp2-targeted gold nanorods and analyzed biodistribution.

Publications

Academic writing

°preprint only, *denotes equal contribution, 8 (co)-first author, 12 (co)-second author
total citations = 1343, h-index = 14, i10-index = 19 (Google Scholar)

38. "Structure-reactivity based control of radical-mediated degradation in thiol-Michael hydrogels"
BE Kirkpatrick, MT Rubio, T Yendamuri, NV Elmer, DSW Benoit, CA Guymon, KS Anseth, TS Hebner
Journal of Materials Chemistry B, *in press*, 7/2025

37. "Digital light processing of photoresponsive and programmable hydrogels"
AP Dhand*, **BE Kirkpatrick***, M Garay-Sarmiento, BR Nelson, CE Miksch, B Meurer-Zeman, HM Zlotnick, A Mandal, JS Lee, JT Cione, CN Bowman, KS Anseth, JA Burdick
Science Advances, *in press*, 7/2025

36. "Anisotropic liquid crystalline hydrogels direct 2D and 3D myoblast alignment"
NP Skillin, L Danielsen, **BE Kirkpatrick**, JD Hoang, LP Hibbard, KS Anseth, TJ White
Advanced Functional Materials, *in press*, 7/2025

35. "PTEN regulates myofibroblast activation in valvular interstitial cells based on subcellular localization"
D Batan*, G Tseropoulos*, **BE Kirkpatrick**, C Bishop, K Bera, A Khang, MCM Weiser-Evans, KS Anseth
Advanced Biology, doi:10.1002/adbi.202400540, 4/2025; *bioRxiv*, 7/2024

34. "Chalcones as wavelength selective crosslinkers: multi-material additive manufacturing of macro- and microscopic soft active devices"
SM Müller, BR Nelson, A Jelinek, **BE Kirkpatrick**, SP Keyser, C Naderer, R Höller, C Waly, D Sivun, J Jacak, KS Anseth, CN Bowman, S Schlögl, T Griesser
Chemistry of Materials, doi:10.1021/acs.chemmater.4c02450, 4/2025

33. "Multifunctional dithiolane monomers for multi-scale, recyclable light-driven additive manufacturing"
BR Nelson, JT Cione, **BE Kirkpatrick**, KM Kreienbrink, AP Dhand, JA Burdick, CW Shields, KS Anseth, CN Bowman
Polymer Chemistry, doi:10.1039/D5PY00199D, 4/2025

32. “In vivo photothermal reconfiguration of liquid crystalline elastomer nanocomposites”
NP Skillin, **BE Kirkpatrick**, NE Friend, AR Perry, JM McCracken, MC Escobar, BR Nelson, NL Day, PS Hume, TK Rajab, KS Anseth, TJ White
Cell Biomaterials, doi:10.1016/j.celbio.2025.100022, 3/2025

31. “Linear and network-forming acetal polymerization of multifunctional alcohols with dichloromethane for degradable and recyclable materials”
JT Kamps*, **BE Kirkpatrick***, SP Keyser, CE Miksch, BR Nelson, JF Rynk, BD Fairbanks, KS Anseth, CN Bowman
Macromolecules, doi:10.1021/acs.macromol.4c03078, 1/2025

30. “Photodegradable polyacrylamide tanglemers enable spatiotemporal control over chain lengthening in high-strength and low-hysteresis hydrogels”
JS Lee*, **BE Kirkpatrick***, AP Dhand, LP Hibbard, BR Nelson, NP Skillin, MC Johnson, D Batan, BD Fairbanks, TJ White, CN Bowman, JA Burdick, KS Anseth
Journal of Materials Chemistry B, doi:10.1039/D4TB02149E, 12/2024

29. “Synthetic photoresponsive hydrogels enable *in situ* control over murine intestinal monolayer differentiation and crypt formation”
MW Young, CE Oroke, **BE Kirkpatrick**, MR Blatchley, PJ Dempsey, KS Anseth
Advanced Functional Materials, doi:10.1002/adfm.202413778, 11/2024

28. “Diverse reactivity of maleimides in polymer science and beyond”
BE Kirkpatrick, KS Anseth, TS Hebner
Polymer International, doi:10.1002/pi.6715, 11/2024

27. “2D co-culture model reveals a biophysical interplay between activated fibroblasts and cancer cells”
ARMP Santos, **BE Kirkpatrick**, KS Anseth, Y Park
Acta Biomaterialia, doi:10.1016/j.actbio.2024.10.031, 10/2024; *Acta Materialia First Look*, 6/2024

26. “Ligand presentation controls collective MSC response to matrix stress relaxation in hybrid PEG-HA hydrogels”
AN Borelli, CL Schultze, MW Young, **BE Kirkpatrick**, KS Anseth
Bioactive Materials, doi:10.1016/j.bioactmat.2024.10.007, 10/2024

25. “Photochemical control of network topology in PEG hydrogels”
BE Kirkpatrick, GK Hach*, BR Nelson*, NP Skillin, JS Lee, LP Hibbard, AP Dhand, HS Grotheer, CE Miksch, V Salazar, TS Hebner, SP Keyser, JT Kamps. J Sinha, LJ Macdougall, BD Fairbanks, JA Burdick, TJ White, CN Bowman, KS Anseth
Advanced Materials, doi:10.1002/adma.202409603, 9/2024

24.° “Fully synthetic hydrogels promote robust crypt formation in intestinal organoids”
EA Hushka, MR Blatchley, LJ Macdougall, FM Yavitt, **BE Kirkpatrick**, K Bera, PJ Dempsey, KS Anseth
bioRxiv, doi:10.1101/2024.07.06.602364, 7/2024

23. “Stiffness anisotropy coordinates supracellular contractility driving long-range myotube-ECM alignment”
NP Skillin, **BE Kirkpatrick**, KM Herbert, BR Nelson, GK Hach, KA Gunay, RM Khan, FW DelRio, TJ White, KS Anseth
Science Advances, doi:10.1126/sciadv.adn0235, 5/2024; *bioRxiv*, 8/2023

22. “Nonlinear elastic bottlebrush polymer hydrogels modulate actomyosin mediated protrusion formation in mesenchymal stromal cells”
ML Ohnsorg, KM Mash, A Khang, VV Rao, **BE Kirkpatrick**, K Bera, KS Anseth
Advanced Materials, doi:10.1002/adma.202403198, 4/2024; *bioRxiv*, 3/2024

21. “Radical-mediated degradation of thiol-maleimide hydrogels”
TS Hebner, **BE Kirkpatrick**, BD Fairbanks, CN Bowman, KS Anseth, DSW Benoit
Advanced Science, doi:10.1002/advs.202402191, 3/2024

20. “Photothermal actuation of thick 3D-printed liquid crystalline elastomer nanocomposites”
NP Skillin, GE Bauman, **BE Kirkpatrick**, JM McCracken, K Park, RA Vaia, KS Anseth, TJ White
Advanced Materials, doi:10.1002/adma.202313745, 3/2024

19. “Engineering native biological complexity from the inside-out and outside-in”
CA DeForest, **BE Kirkpatrick**, KS Anseth
Nature Chemical Engineering, doi:10.1038/s44286-023-00013-1, 1/2024

18. “Reversible intracellular gelation of MCF10A cells enables programmable control over 3D spheroid growth”
DL McNally*, LJ Macdougall*, **BE Kirkpatrick***, CV Maduka, TE Hoffman, BD Fairbanks, CN Bowman, SL Spencer, KS Anseth
Advanced Healthcare Materials, doi:10.1002/adhm.202302528, 12/2023

17. “Adaptable networks with semiorthogonal two-stage polymerizations enabled by sequential photoinitiated thiol-ene and disulfide-ene reactions”
Y Hu, SM Soars, **BE Kirkpatrick**, M Podgórski, N Bongiardina, BD Fairbanks, KS Anseth, CN Bowman
Macromolecules, doi:10.1021/acs.macromol.3c01728, 11/2023
16. “Facile physicochemical reprogramming of PEG-dithiolane microgels”
BR Nelson, **BE Kirkpatrick**, NP Skillin, N Di Caprio, JS Lee, LP Hibbard, GK Hach, A Khang, TJ White, JA Burdick, CN Bowman, KS Anseth
Advanced Healthcare Materials, doi:10.1002/adhm.202302925, 11/2023
15. “Light-based vat-polymerization bioprinting”
R Levato, O Dudaryeva, CE Garciamendez-Mijares, **BE Kirkpatrick**, R Rizzo, J Schimelman, KS Anseth, S Chen, M Zenobi-Wong, YS Zhang
Nature Reviews Methods Primers, doi:10.1038/s43586-023-00231-0, 6/2023
14. “Photoinduced dithiolane crosslinking for multiresponsive dynamic hydrogels”
BR Nelson*, **BE Kirkpatrick***, CE Miksch, MD Davidson, NP Skillin, GK Hach, A Khang, SN Hummel, BD Fairbanks, JA Burdick, CN Bowman, KS Anseth
Advanced Materials, doi:10.1002/adma.202211209, 1/2023
13. “In situ modulation of intestinal organoid epithelial curvature through photoinduced viscoelasticity directs crypt morphogenesis”
FM Yavitt, **BE Kirkpatrick**, MR Blatchley, KF Speckl, E Mohagheghian, R Moldovan, N Wang, PJ Dempsey, KS Anseth
Science Advances, 9 (3), doi:10.1126/sciadv.add5668, 1/2023
12. “Surface-enforced alignment of reprogrammable liquid crystalline elastomers”
TS Hebner, **BE Kirkpatrick**, KS Anseth, CN Bowman, TJ White
Advanced Science, doi:10.1002/advs.202204003, 8/2022
11. “4D printing of extrudable and degradable poly(ethylene glycol) microgel scaffolds for multidimensional cell culture”
CE Miksch, NP Skillin*, **BE Kirkpatrick***, GK Hach, VV Rao, TJ White, KS Anseth
Small, doi:10.1002/smll.202200951, 6/2022
10. “Osteopontin activity modulates sex-specific calcification in engineered valve tissue mimics”
ME Schroeder, D Batan, A Gonzalez Rodriguez, KF Speckl, DK Peters, **BE Kirkpatrick**, GK Hach, CJ Walker, JC Grim, BA Aguado, RM Weiss, KS Anseth
Bioengineering & Translational Medicine, doi:10.1002/btm2.10358, 6/2022
9. “Intracellular crowding by bio-orthogonal hydrogel formation induces reversible molecular stasis”
LJ Macdougall, TE Hoffman, **BE Kirkpatrick**, BD Fairbanks, CN Bowman, SL Spencer, KS Anseth
Advanced Materials, doi:10.1002/adma.202202882, 6/2022
8. “Granular PEG hydrogels mediate osteoporotic MSC clustering via N-cadherin influencing the pro-resorptive bias of their secretory profile”
VV Rao, ME Wechsler, E Cravens, SJ Wojda, AS Caldwell, **BE Kirkpatrick**, SW Donahue, KS Anseth
Acta Biomaterialia, doi:10.1016/j.actbio.2022.04.023, 6/2022
7. “Stress relaxation and composition of hydrazone-crosslinked hybrid biopolymer-synthetic hydrogels determine spreading and secretory properties of MSCs”
AN Borelli, MW Young, **BE Kirkpatrick**, MW Jaeschke, S Mellett, S Porter, MR Blatchley, VV Rao, BV Sridhar, KS Anseth
Advanced Healthcare Materials, doi:10.1002/adhm.202200393, 5/2022
6. “4D materials with photoadaptable properties instruct and enhance intestinal organoid development”
FM Yavitt, **BE Kirkpatrick**, MR Blatchley, KS Anseth
ACS Biomaterials Science & Engineering, doi:10.1021/acsbiomaterials.1c01450, 3/2022
5. “Synthesis, selective decoration, and photocrosslinking of self-immolative poly(thioester)-PEG hydrogels”
SM Soars, **BE Kirkpatrick**, BD Fairbanks, JT Kamps, KS Anseth, CN Bowman
Polymer International, doi:10.1002/pi.6388, 3/2022
4. “Photoclick chemistry: a bright idea”
BD Fairbanks, LJ Macdougall, S Mavila, J Sinha, **BE Kirkpatrick**, KS Anseth, CN Bowman
Chemical Reviews, doi:10.1021/acs.chemrev.0c01212, 4/2021
3. “Toward stimuli-responsive dynamic thermosets through continuous development and improvements in covalent adaptable networks (CANs)”
M Podgórski, BD Fairbanks, **BE Kirkpatrick**, M McBride, A Martinez, A Dobson, NJ Bongiardina, CN Bowman
Advanced Materials, doi:10.1002/adma.201906876, 2/2020

2. "Cyclophilin D knockout protects the mouse kidney against cyclosporin A-induced oxidative stress"
Je Klawitter, Jo Klawitter, AT Pennington, **BE Kirkpatrick**, GF Roda, NC Kotecha, JM Thurman, U Christians
AJP Renal, doi:10.1152/ajprenal.00417.2018, 9/2019
1. "PTEN deficiency promotes pathological vascular remodeling of human coronary arteries"
KS Moulton, M Li, K Strand, S Burgett, P McClatchey, R Tucker, SB Furgeson, S Lu, **BE Kirkpatrick**, JC Cleveland, RA Nemenoff, AV Ambardekar, MCM Weiser-Evans
JCI Insight, doi:10.1172/jci.insight.97228, 2/2018

Other writing

2. "70 years ago, physicians used a heart defect to fix blue babies."
BE Kirkpatrick, massivesci.com, 5/2019
1. "Frequent flyer: why isn't dad dead yet?"
BE Kirkpatrick, *Journal 2020*, 5, 31-38, 4/2017

Peer review activity (assisting Dr. Kristi Anseth)

Acta Biomaterialia, Advanced Materials, *Advanced Functional Materials*, *Advanced Healthcare Materials*, *Angewandte Chemie*, *Chemical Reviews*, *Journal of the American Chemical Society*, *Nature Communications*, *Nature Materials*, *Nature Protocols*, *Science Advances*, *Small*

Presentations
Academic talks

19. "Ultrafast-relaxing and photocrosslinkable PEG hydrogels for cell and organoid culture in 3D-printable dynamic matrices"
SFB Annual Meeting, Chicago, IL, 4/2025 (presented by AP Dhand)
18. "Additive manufacturing of photoresponsive hydrogels"
MSTP Special Topics, Aurora, CO, 3/2025
17. "Photochemical modulation of hydrogel network topology"
Rising Stars in Soft and Biological Matter Symposium, virtual, 12/2024
16. "Inducing synthetic cryptobiosis in mammalian cells via reversible intracellular hydrogelation"
ACS Fall Meeting, Denver, CO, 8/2024
also presented as rapid-fire talk/poster at SFB Rocky Mountain Biomaterials Day, Aurora, CO, 9/2024
15. "Photoinduced transformations in extracellular matrix properties drive intestinal organoid morphogenesis in synthetic hydrogels"
6th Annual CU MSTP Retreat, Aurora, CO, 4/2024
14. "Expanding the hydrogel photochemistry toolbox"
Excellence in Graduate Polymer Research Symposium
ACS Spring Meeting, New Orleans, LA, 3/2024
13. "Novel stability and trajectory analysis of engineered muscle tissue development"
MSTP Special Topics, Aurora, CO, 10/2023
12. "Induced epithelial curvature in photopatterned intestinal organoids regulates symmetry breaking via pre-transcriptional changes in membrane tension and resting potential"
SFB Annual Meeting, San Diego, CA, 4/2023
11. "Controlling and mapping intestinal organoid morphodynamics: bioelectric patterning and topological data analysis"
MSTP Special Topics, Aurora, CO, 9/2022
10. "Characterization of radical-mediated and [2+2] cycloaddition photocrosslinking of maleimide monomers and macromers"
MRS Spring Meeting, Honolulu, HI, 5/2022
9. "Spatiotemporal control of cell function by photoreversible macromolecular crowding"
SFB Anschutz Chapter Meeting, Aurora, CO, 4/2022
8. "Intracellular crowding by bio-orthogonal hydrogelation induces reversible molecular stasis"
4th Annual CU MSTP Retreat, Aurora, CO, 2/2022
7. "Macromolecular crowding by bio-orthogonal hydrogelation and its effect on intracellular diffusion and cellular function"

Best presentation award
Rocky Mountain Biomaterials Day, Aurora, CO, 10/2021

6. "On macromolecular crowding and its effect on cell cycle"
3rd Annual CU MSTP Retreat, Aurora, CO, 2/2021
5. "Developing synthetic networks for biological preservation"
MSTP Special Topics, Aurora, CO, 9/2020
4. "Implementing covalent adaptable networks for biomedical applications"
2nd Annual CU MSTP Retreat, Aurora, CO, 2/2020
3. "Synthesizing novel monomers towards self-immolative gels"
MSTP Special Topics, Aurora, CO, 11/2019
2. "Bioprinting modular granular hydrogels"
MSTP Special Topics, Aurora, CO, 12/2018
1. "Non-destructive quantitation of gold nanorod uptake by microplate reader absorbance analysis"
NIST Summer Undergraduate Research Colloquium, Boulder, CO, 7/2016

Outreach talks

8. "Complex organoid models: bottom-up and top-down compartmentalization in microphysiological systems"
Anseth group undergraduate research lecture, 10/2023
7. "How to think like a scientist, no matter what you do in life"
CU STEM Scholars summer program, 7/2022
Slides courtesy of GD Kirkpatrick, MD, PhD
6. "Dual-degree training programs: becoming a physician-scientist"
Introduction to Chemical Engineering, CU Boulder, Boulder, CO, 11/2021, 11/2022, 11/2024
also presented at CU STEM Scholars summer program, 7/2022
5. "How to read (and review) a paper"
Undergraduate Mentorship Program for Physician Scientists, Aurora, CO, 7/2021
4. "Deciding between MD, PhD, and MD-PhD programs" (panelist)
Undergraduate Mentorship Program for Physician Scientists, Aurora, CO, 7/2021
3. "The science of sutures"
Biotechnology and Medical Research STEM Academy, Boulder, CO, 6/2021
also presented at CU STEM Scholars summer program, 7/2022
2. "Anatomy of the larynx and pharynx"
Knowledge Base (teaching first-year CU medical students), Aurora, CO, 8/2020
1. "Surviving human body block and graduate core"
MSTP Special Topics, Aurora, CO, 8/2019

Posters
*indicates that poster was presented by an undergraduate mentee
(co-authored posters presented by graduate students or postdocs are not included)

12.* "Photopolymerizable dual-crosslinked boronate ester hydrogels to study cellular responses to rapid stress relaxation"
Hibbard, **Kirkpatrick**, Dhand, Bera, Nelson, Lee, Blatchley, Bowman, Burdick, Anseth
SFB Rocky Mountain Biomaterials Day, Aurora, CO, 9/2024
11.* "Photodegradable polyacrylamide tanglemers"
Lee, **Kirkpatrick**, Dhand, Hibbard, Nelson, Skillin, Johnson, Batan, Fairbanks, White, Bowman, Burdick, Anseth
SFB Rocky Mountain Biomaterials Day, Aurora, CO, 9/2024
10.* "Reversible intracellular gelation reduces MCF10A spheroid growth"
McNally, Macdougall, **Kirkpatrick**, Maduka, Fairbanks, Bowman, Anseth
2nd Prize Award; Food, Pharmaceutical, and Biotechnology Session
AIChE Annual Meeting, Orlando, FL, 11/2023
also presented at SFB Rocky Mountain Biomaterials Day, Aurora, CO, 9/2024
9.* "Colorimetric quantification of PEG hydrogel mass loss"
Hach, **Kirkpatrick**, Anseth
ACS Spring Meeting, Indianapolis, IN, 3/2023
8. "Photochemical control of hydrogel network topology"

Kirkpatrick, Nelson, Hach, Skillin, Anseth
SFB Rocky Mountain Biomaterials Day, Aurora, CO, 3/2023
also presented at Photopolymerization Fundamentals, Boulder, CO, 9/2023

7.* "Photoinduced dithiolane crosslinking, exchange, and depolymerization for dynamic hydrogels"
Hummel, Nelson, **Kirkpatrick**, Hach, Bowman, Anseth
2nd Prize Award; Food, Pharmaceutical, and Biotechnology Session
AIChE Annual Meeting, Phoenix, AZ, 11/2022

6. "Redshifted tetrazole-ene PEG networks for self-reporting fluorogenic hydrogelation"
Kirkpatrick, Kamps, Hach, Macdougall, Anseth
ACS Fall Meeting, virtual due to COVID-19, 8/2021
also presented at 5th Annual CU MSTP Retreat, Aurora, CO, 2/2023

5. "Bioprinting modular granular hydrogels"
Kirkpatrick, Miksch, Anseth
1st Annual CU MSTP Retreat, Aurora, CO, 3/2019

4. "Cyclophilin D knockout protects the mouse kidney against cyclosporin A-induced oxidative stress and DNA hypomethylation"
Kirkpatrick, Jo Klawitter, Pennington, Thurman, Kotecha, Christians, Je Klawitter
Annual Anesthesiology Research Conference, Aurora, CO, 10/2018

3. "Effect of 1,8-dihydroxyanthraquinone on *Drosophila melanogaster* development"
Kirkpatrick, Moon
CU Boulder Clinical Undergraduate Research Symposium, Boulder, CO, 4/2017

2. "Neuropilin 2-targeted nanoparticles bind selectively to plaque neovascularization in atherosclerotic arteries"
Kirkpatrick, Li, Tian, Wang, Ranville, Tuder, Boyes, Moulton
International Vascular Biology Meeting (NAVBO), Boston, MA, 11/2016

1. "Molecular zipcodes of vasa vasorum neovascularization in atherosclerosis and diabetes"
Li, Jones, **Kirkpatrick**, Chaudhary, Demos-Davies, Tuder, Taylor, Boyes, Moulton
Colorado Clinical and Translational Sciences Institute Summit, Aurora, CO, 8/2014

Video essays

2. "Re-recording the record: pseudotranslation and pseudotranscription in media and reality" [link] 5/2017
1. "Don't trust your ears: physical and digital sound manipulation" [link] 12/2015
received CU Boulder Mackison writing award, featured in hometown newspaper

Research Mentees
(middle school mentees not included)

Graduate students

1. Benjamin R. Nelson, CU Boulder Chemical Engineering PhD student, Fall 2021-present

Undergraduate students

12. Jaxon Cione, CU Boulder undergraduate student, Fall 2024-Spring 2025
awarded academic year funding through CU Boulder UROP
11. Carly Fox, CU Boulder undergraduate student, Fall 2024-present
10. Abe Fairbanks, CU Boulder undergraduate student, Summer 2024
9. Makayla Johnson, Rose-Hulman Institute of Technology undergraduate student, Summer 2024
funded by NSF-REU
8. Tvishi Yendamuri, CU Boulder undergraduate student, Spring 2024-present
awarded academic year funding through CU Boulder UROP
7. Henry Grotheer, CU Boulder undergraduate student, Fall 2023-Spring 2024
6. Lea Pearl Hibbard, CU Boulder undergraduate student, Spring 2023-Summer 2024
now Biological Engineering PhD student, CU Boulder
5. Joshua Lee, CU Boulder undergraduate student, Spring 2023-present
awarded summer and academic year funding through CU Boulder initiatives (UROP/YSSRP)
4. Violeta Salazar, CU Boulder undergraduate student, Spring 2023

3. Sydney Hummel, Purdue University undergraduate student, Summer 2022, funded by NSF-REU
now Master's in Medical Sciences student, Churchill Scholarship, University of Cambridge
2. Declan Gore, CU Boulder undergraduate student, Fall 2021
1. Grace Hach, CU Boulder undergraduate student, Summer 2021-Spring 2024
awarded summer (x2) and academic year funding (x2) through CU Boulder initiatives (UROP/BSI)
now Master's in Bioinformatics and Genomics student, Knight Campus Graduate Internship Program, University of Oregon

<u>High school students</u>

3. Tessa N. Fox, Boulder High School student, Fall 2022-Spring 2023
2. Anastasia Diener, Fairview High School student, Spring 2022,
awarded First Place, Senior Division Chemistry & Biochemistry, Colorado State Science Fair
1. Shannon McCallan, Peak to Peak High School student, Summer 2016 (NIST),
now PhD student at Georg-August-Universität Göttingen, Göttingen, Germany

Honors and Awards

2024	Rising Stars in Soft and Biological Matter Symposium hosted by the UChicago and UCSD MRSECs
2024	Ramirez Graduate Student Award for excellence in scholarship and research CU Boulder Department of Chemical and Biological Engineering
2024	Selected talk, Excellence in Graduate Polymer Research Award Symposium, ACS Division of Polymer Chemistry
2024	Graduate School Travel Grant, CU Boulder Department of Chemical and Biological Engineering
2021	Best Presentation, SFB Rocky Mountain Biomaterials Day, Aurora, CO
2018-2020	National Institutes of Health T32 Predoctoral Training Grant (MSTP), Aurora, CO
2019	First Prize, CU Anschutz Bioethics Case Competition, Aurora, CO
2018	First Prize, CU Anschutz Bioethics Case Competition, Aurora, CO
2013-2017	Joseph A. Sewall Award, CU Boulder, Boulder, CO
2017	Finalist, CESR Business Ethics Case Competition, Boulder, CO
2016	NIST Summer Undergraduate Research Fellowship, Boulder, CO
2016	Mackison Writing Award, CU Boulder, Boulder, CO
2016	Outstanding Delegate, National Model United Nations, New York, NY
2015	American Heart Association Summer Undergraduate Research Fellowship, Aurora, CO
2014	Clinical Undergraduate Research Experience Fellowship, Aurora, CO

Selected Activities

2024	Proposal reviewer, Undergraduate Research Opportunities Program, CU Boulder
2021-present	Undergraduate coordinator, Anseth research group
2021	Host, Anseth research group undergraduate symposiums Organized and moderated a semester-long twice-weekly virtual journal club and lecture series
2021	Mentor, Anschutz Medical Campus undergraduate mentorship program
2021	Conference planner, national MD-PhD student conference Coordinated talks by Robert Langer (keynote) and Jean-luc Doumont (data viz workshop) Organized and moderated 'Evidence-Based Wellness' session featuring panel of scientists
2020-present	Webmaster, Anseth research group
2019-present	Planning committee, CU MSTP Annual Retreat Tech support and web services (mstp-retreat.co) for six day-long annual retreats
2019-present	Mentor, Bryant-Webster Dual Language School "STEM scholars" program Annual one-on-one mentorship program for underserved 7th-graders
2019-2021	Project lead, CU MSTP logo redesign Designed and sold ~$10K of jackets emblazoned with new CU MSTP logo
2019	Mentor, VistaPEAK High School senior design class
2019	Mentor, Think Like A Scientist After-school program for underserved 3rd-graders interested in science
2018-present	MSTP student council, 2018 class representative
2018-2020	1st trumpet, viola, Anschutz Medical Campus Orchestra

2018	Teacher, Bricks for Kids LEGO-themed after-school science education program for elementary school students
2017	Volunteer, Denver Health Emergency Department and Adult Urgent Care
2014-2017	Tutor, CU Boulder Mentored 10+ CU students in 12+ courses (engineering, mathematics, humanities)
2013-2015	1st trumpet, 4th trumpet, CU Boulder Thompson Jazz Studies Program Big Bands
2013	Best brass instrument performance (trumpet), Clark College Jazz Festival, Vancouver, WA
2012-2013	1st, 3rd trumpet, Lower Columbia College Jazz Orchestra and Pep Band and Northwest Jazz Orchestra, Longview, WA
2012	1st, 2nd violin, 2nd trumpet, Brevard Music Festival, Brevard, NC
2011	2nd violin, Brevard Music Festival, Brevard, NC
2010	1st violin, Icicle Creek Musical Festival, Leavenworth, WA

Professional Affiliations

American Association for the Advancement of Science
American Chemical Society
American Institute of Chemical Engineers
American Medical Association
Biomedical Engineering Society
Colorado Medical Society
Materials Research Society
Regenerative Engineering Society
Society for Biological Engineering
Society for Biomaterials