Zosia Krusberg

Director of Graduate Studies Associate Senior Instructional Professor Department of Physics The University of Chicago 5720 South Ellis Avenue Chicago, Illinois 60637, USA 718.614.3764 (cell) zosia@uchicago.edu

Education

A.M. Clinical Social Work

The University of Chicago, 2026 (expected)

Ph.D. Physics

The University of Chicago, 2011

M.S. Physics

The University of Chicago, 2007

Ed.M. Mind, Brain, and Education/The Teaching and Learning of Physics (Special Studies) Harvard University, 2006

S.M. Physics and Astronomy Dartmouth College, 2005

A.B. Physics and Astronomy, summa cum laude

Dartmouth College, 2004

International Baccalaureate Diploma

Cairo American College, 2000

Professional Experience

Director of Graduate Studies and Associate Senior Instructional Professor

Department of Physics Physical Sciences Division and the College The University of Chicago 2019 – present

Associate Professor of Instruction

Department of Physics and Astronomy Weinberg College of Arts and Sciences Northwestern University 2016 – 2019

Helmsley Postdoctoral Teaching Scholar

Department of Physics Poorvu Center for Teaching and Learning Yale University 2015 – 2016

Visiting Assistant Professor

Department of Physics and Astronomy Vassar College 2011 – 2015

Overview of Current Administrative Responsibilities

The University of Chicago

Leading the Department of Physics graduate program serving approximately 240 graduate students working alongside 55 physics faculty members and 30 researchers in other departments in the The University of Chicago Physical and Biological Sciences Divisions, at the The University of Chicago Pritzker School of Molecular Engineering, and at three national research laboratories—Argonne National Laboratory, Fermi National Accelerator Laboratory, and NASA Jet Propulsion Laboratory.

Overseeing all facets of the graduate program including admissions and recruitment, academic program policies, the graduate curriculum, doctoral candidacy, academic and research advising, thesis and advisory committees, good standing and academic probation, student funding, research prizes and fellowships, and teaching assistant training and advising.

Advancing policies, programs, and best practices to support diversity, equity, and inclusion in the graduate program in line with the Department of Physics Diversity, Equity, and Inclusion Strategic Plan. This includes the active recruitment of students from historically underrepresented groups, holistic graduate admissions, candidacy course oversight, individual and group tutoring programs, advisor-advisee expectation compacts, critical mathematics and research skills workshops, early thesis committee formation and annual academic progress reports, regular student town halls, and regular teaching assistant diversity trainings.

Spearheading efforts to support teaching innovation and excellence in undergraduate and graduate curricula by leading professional development workshops in science pedagogy, offering training and support for active-learning pedagogy and inclusive teaching practices, organizing speakers and journal clubs, leading faculty discussions on the teaching and learning of physics, teaching a graduate seminar on the teaching and learning and physics, and managing the recruitment, hiring, and supervision of instructional professors with expertise in physics education.

Partnering with offices across the Physical Sciences Division and the College to further the educational mission of the department, division, and university, including creating and implementing new academic program policies, providing students with institutional and community resources, guiding faculty through emergent issues in their engagement with their undergraduate and graduate students, and offering individualized support to students facing significant academic or personal challenges.

Academic Honors

Dean's Distinguished Leadership Award, Crown Family School of Social Work, Policy, and Practice, 2023 Associated Student Government Faculty Honor Roll, Northwestern University, 2018 – 2019 Wayne C. Booth Prize for Excellence in Teaching Nominee, The University of Chicago, 2006 – 2010 Leadership in Education Award, Harvard University, Fall 2005 Hazeltine Chemistry-Physics Prize, Dartmouth College, Spring 2004 Phi Beta Kappa, Dartmouth College Chapter, Spring 2004 Sigma Xi Scientific Research Honor Society, Dartmouth College Chapter, Spring 2004 Rockefeller Leadership Fellow, Dartmouth College, 2003 – 2004 Presidential Scholar, Dartmouth College, 2002 – 2004 Golden Key National Honour Society, Dartmouth College Chapter, May 2002 National Society of Collegiate Scholars, Dartmouth College Chapter, May 2001

Grants, Fellowships, and Awards

Exploratory Teaching Group Award (\$1,000), The University of Chicago, 2023 – 2024 Founders Award (\$12,000), Crown Family School of Social Work, Policy, and Practice, Spring 2023 Exploratory Teaching Group Award (\$3,500), The University of Chicago, 2022 – 2023 College Innovation Fund Award (\$31,000), The University of Chicago, Summer 2020 NASA Space Grant Award (\$5,000), Northwestern University, Spring 2018 Institutional Fundraising (\$30,000), Northwestern University, Spring 2018 Vera Rubin '48 Fund Award (\$3,000), Vassar College, 2015 – 2016 Ford Scholar Fellowship (\$5,000), Vassar College, Summer 2015 Undergraduate Research Summer Institute Fellowship (\$5,000), Vassar College, Summer 2015 Carolyn Grant '36 Endowment Award (\$5,000), Vassar College, 2013 – 2015 Dean of the Faculty Grant (\$2,000), Vassar College, 2013 – 2014 Vera Rubin '48 Fund Award (\$1,000), Vassar College, Fall 2013 Undergraduate Research Summer Institute Fellowship (\$5,000), Vassar College, Summer 2013 Undergraduate Research Summer Institute Fellowship (\$5,000), Vassar College, Summer 2013 Diving Into Research Fellowship (\$3,000), Vassar College, Summer 2013 Robert G. Sachs Fellowship (\$10,000), The University of Chicago, Summer 2007 NASA Space Grant Award (\$5,000), Dartmouth College, Summer 2003

Selected Publications (Education)

Zosia Krusberg, Matthew Cheng, Andrew Feldman, and Noa Perlmutter. Exploring the subjective experience of physics problem solving through contemplative practice and introspective writing, in preparation for submission to the *American Journal of Physics*.

Noa Perlmutter and Zosia Krusberg. What we talk about when we talk about physics problem solving (2023). In revision for publication in *The Physics Teacher*. Preprint at arxiv.org/abs/2211.00694.

Zosia Krusberg, Andrew Feldman, and Elam Coalson. Contemplating electromagnetic phenomena in lived experience through somatic meditation. *The Physics Teacher* **61**, 113 (2023).

Zosia Krusberg and Meredith Ward. Classical physics and human embodiment: The role of contemplative practice in integrating formal theory and personal experience in the undergraduate physics curriculum. The Journal of Contemplative Inquiry 5(1), 57 (2018).

Zosia A. C. Krusberg. Emerging technologies in physics education. Journal of Science Education and Technology 16, 401 (2007).

Selected Publications (Physics)

Maria Beltrán, Dan Hooper, Edward W. Kolb, Zosia A. C. Krusberg, and Tim M. P. Tait. Maverick dark matter at colliders. *Journal of High Energy Physics* **1009**, 037 (2010).

Maria Beltrán, Dan Hooper, Edward W. Kolb, and Zosia A. C. Krusberg. Deducing the nature of dark matter from direct and indirect detection in the absence of collider signatures of new physics. *Physical Review D* **80**, 043509 (2009).

Zosia A. C. Krusberg and Brian Chaboyer. UBVI CCD Photometry of the old open cluster Berkeley 17. Astronomical Journal 131, 1565 (2006).

Selected Conferences and Workshops

Nature, Earth, and Humanity: The Evolution of Connection, Promega Corporation, May 2023
Introducing Earth-Care Practices in Education, Center for Contemplative Mind in Society, August 2022
Othering, Belonging, and Becoming, Mind and Life Institute, June 2022
The Mind, the Human-Earth Connection, and the Climate Crisis, Mind and Life Institute, June 2021
State of the Field, Mind and Life Institute, November 2020
Winter Meeting, American Association of Physics Teachers, January 2018
April Meeting, American Physical Society, January 2017
Learning, Teaching, and Assessment Forum, Northwestern University, November 2016
Valuing Diversity in Teaching and Learning, Yale University, May 2016
Mindfulness, MOOCs, and Money in Higher Education, Naropa University, March 2016
International Symposium for Contemplative Studies, Mind and Life Institute, October 2014
Annual Conference, Center for Contemplative Mind in Society, Smith College, November 2013

Research Talks

Contemplative practice in physics education: Reimagining the classical physics curriculum The University of Chicago, Eckhardt-Neubauer Winter Talk, March 2021 The University of Chicago, Snell-Hitchcock Resident Dean Tea, February 2021 Lawrence Technological University, HHMI Idea Factory, December 2020 The University of Chicago, Women and Gender Minorities in Physics, October 2019 Northwestern University, Women in Science and Engineering Research, May 2019 Northwestern University, Department of Physics and Astronomy, October 2017 Yale University, Center for Teaching and Learning, Spring 2016 Hunter College, Academic Center for Excellence in Research and Teaching, March 2016 Illuminating dark matter: Cosmology and particle physics Northwestern University, Society of Physics Students, February 2017 Yale University, Department of Physics, May 2016 Vassar College, Modern Science Talk, April 2015 Vassar College, New Student Orientation, August 2014 Arlington Library, Poughkeepsie Public Library District, May 2014 Vassar College, Vassar Science Scholars Program, March 2014 Vassar College, Physics 116 Guest Lecture, October 2013 Vassar College, A Day at Vassar, October 2013 Vassar College, New Student Orientation, August 2013 Vassar College, Physics 116 Guest Lecture, November 2012 Vassar College, Astronomy 101 Guest Lecture, October 2012 Vassar College, Physics 116 Guest Lecture, November 2011

Whitman College, Department of Astronomy, April 2011
Vassar College, Department of Physics and Astronomy, February 2011
Milwaukee Astronomical Society, November 2010
Whitman College, Department of Astronomy, October 2009
The University of Chicago, Ryerson Astronomical Society, October 2008
Loyola College in Maryland, Department of Physics, September 2008
Milwaukee Astronomical Society, September 2008

The phenomenology of maverick dark matter

Trinity College, Department of Physics, December 2014
Williams College, Department of Physics, November 2011
The University of Chicago, Department of Physics, July 2011
Aspen Center for Physics, February 2011
CEA-Saclay, Institut de Physique Théorique, October 2010
Université Paris 7, Laboratoire Astroparticule et Cosmologie, September 2010
The University of Chicago, Enrico Fermi Institute, November 2009
Fermi National Accelerator Laboratory, September 2009
The University of Chicago, Department of Astronomy and Astrophysics, September 2009

Committee Membership

The University of Chicago

Curricular Articulation and Assessment Working Group, Office of the Provost, 2023 – present Instructional Professor Progression Advisory Board, Office of the Provost, 2023 – present Admissions Committee (ex officio), Department of Physics, 2019 – present Recruitment Committee (ex officio), Department of Physics, 2019 – present Candidacy Committee (Chair, ex officio), Department of Physics, 2019 – present Teaching Activities Committee (ex officio), Department of Physics, 2019 – present Instructional Professor Search Committee, Department of Physics, 2019 – 2020

Northwestern University

Undergraduate Curricular Review Committee, Weinberg College of Arts and Sciences, 2017 – 2019
Climate and Diversity Committee, Department of Physics and Astronomy, 2018 – 2019
Teaching Assistantship Committee (Chair), Department of Physics and Astronomy, 2017 – 2019
Undergraduate Curriculum Committee, Department of Physics and Astronomy, 2016 – 2019
Professor of Instruction Search Committee (Chair), Department of Physics and Astronomy, 2018 – 2019
Professor of Instruction Search Committee (Chair), Department of Physics and Astronomy, 2017 – 2018
Laboratory Renovations Committee, Department of Physics and Astronomy, 2017 – 2018
Lecturer Search Committee, Department of Mathematics, 2016 – 2017

Yale University

Climate and Diversity Committee, Department of Physics, 2015 – 2016 Committee on Undergraduate Physics Education, Department of Physics, 2015 – 2016 Outreach Committee, Department of Physics, 2015 – 2016

Vassar College

Contemplative Studies Development Project, Spring 2015 Carolyn Grant '36 Endowment Steering Committee, 2014 – 2015

Institutional Service

The University of Chicago

Colloquium on the Evaluation of Teaching, Chicago Center for Teaching and Learning, 2023 – present Co-Chair, CCTL Exploratory Teaching Group (Inclusive Teaching Practices), 2023 – 2024 Co-Chair, CCTL Exploratory Teaching Group (Active Learning Pedagogies), 2022 – 2023 Founder and Organizer, Pedagogical Learning Community, Department of Physics, 2022 – present Member, APS Inclusion, Diversity, and Equity Alliance, 2020 – present Faculty Mentor, First-Generation, Low-Income, Immigrant Ally (FLI) Network, 2020 – present Founder and Organizer, Physics Education Journal Club, Department of Physics, 2019 – present Faculty Pedagogical Advisor, Department of Physics, 2019 – present

Northwestern University

Faculty Mentor, Searle Fellows Program, Searle Center, 2018 – 2019
Faculty Mentor, Committee on Diversity and Inclusion, Graduate Student Council, 2018 – 2019
Faculty Mentor, Mentored Discussions of Teaching, Searle Center, 2017 – 2019
Advisory Board Member, Academic Support & Learning Advancement, Searle Center, 2017 – 2019
Instructor, Teaching Assistant Training Program, Department of Physics and Astronomy, 2017 – 2019
Co-Chair, Local Organizing Committee, Conference for Undergraduate Women in Physics, 2017 – 2019
Faculty Fellow, Slivka Science and Engineering Residential College, 2017 – 2019
Physics Education Seminar Series, Northwestern University, 2017 – 2019
Founder and Faculty Mentor, Society of Women in Physics and Astronomy, 2016 – 2019
Faculty Pedagogical Advisor, Department of Physics and Astronomy, 2016 – 2019
Student Academic Advisor, Department of Physics and Astronomy, 2016 – 2019
Speaker, Academic Support & Learning Advancement, Searle Center, Fall 2018
Faculty Mentor, Learning Assistantship Pilot Program, Searle Center, Spring 2018

Yale University

Instructor, Scientific Teaching Workshop, Poorvu Center for Teaching and Learning, Spring 2016 Science Education Seminar Series, Center for Teaching and Learning, 2015 – 2016 Science Education Journal Club, Center for Teaching and Learning, 2015 – 2016

Vassar College

Student Academic Advisor, Department of Physics and Astronomy, 2012 – 2015

Teaching

The University of Chicago The Teaching and Learning of Physics (Physics 300): Autumn 2019, Autumn 2020, Autumn 2021, Autumn 2022, Autumn 2023. Waves, Optics, and Heat (Physics 133): Spring 2021, Summer 2022, Summer 2023. Electricity and Magnetism (Physics 132): Summer 2020, Winter 2021, Summer 2021, Winter 2022, Summer 2023. Electrodynamics for the Life Sciences (Physics 122): Winter 2023. Northwestern University Fundamentals of Physics III (Physics 140-3): Spring 2019. Fundamentals of Physics II (Physics 140-2): Winter 2019. Fundamentals of Physics I (Physics 140-1): Fall 2018. General Physics III (Physics 135-3): Spring 2017, Spring 2018, Summer 2018, Spring 2019. General Physics II (Physics 135-2): Winter 2017, Fall 2017, Winter 2018, Winter 2019. General Physics I (Physics 135-1): Fall 2016, Summer 2017, Fall 2017, Summer 2018, Fall 2018, Summer 2019. Yale University University Physics II (Physics 181): Spring 2016. University Physics I (Physics 180): Fall 2015. Vassar College Cosmology (Astronomy 375/Physics 375): Fall 2014. Elementary Particle Physics (Physics 375): Spring 2012, Spring 2013.

Thermodynamics and Statistical Mechanics (Physics 245): Spring 2015.
Electrodynamics (Physics 240): Fall 2012.
Planetary and Space Science (Astronomy 230): Spring 2014.
Classical Mechanics (Physics 210): Spring 2012, Spring 2013, Spring 2014, Spring 2015.
Fundamentals of Physics II (Physics 114): Spring 2012, Spring 2013, Spring 2014, Spring 2015.
Fundamentals of Physics I (Physics 114): Spring 2012, Spring 2013, Spring 2014, Spring 2015.
Fundamentals of Physics I (Physics 113): Fall 2011, Fall 2012, Fall 2013, Fall 2014.
Solar System Astronomy (Astronomy 101): Fall 2013.

Select Teaching Evaluation Scores¹

The University of Chicago
Effective syllabus: 4.7/5.0 (4.1/5.0)
Clear objectives and expectations: 4.7/5.0 (4.1/5.0)
Stimulating interest in subject: 4.5/5.0 (3.8/5.0)
Availability and helpfulness: 4.8/5.0 (4.0/5.0)
Significant contribution to learning: 4.7/5.0 (3.9/5.0)
Inclusive environment: 4.9/5.0 (3.8/5.0)

Northwestern University

Overall rating of the instruction: 5.8/6.0 (4.2/6.0) Overall rating of the course: 5.6/6.0 (4.0/6.0) Effectiveness of the instructor in stimulating your interest in the subject: 5.7/6.0 (4.0/6.0) Preparation of the instructor for class: 5.9/6.0 Effectiveness with which the instructor communicated course content and ideas: 5.9/6.0 Instructor enthusiasm: 6.0/6.0

Vassar College

Course organization: 4.9/5.0 (4.4/5.0) How well course met its objectives: 4.8/5.0 (4.4/5.0) Effectiveness of lecture or presentation: 4.7/5.0 (4.1/5.0) Ability to illuminate difficult material: 4.7/5.0 (4.1/5.0)

¹Averages over all courses with representative averages for all instructors teaching the same courses in parentheses.

Ability to guide discussion: 4.7/5.0 (4.1/5.0)

- Openness to students' point of view: 4.9/5.0 (4.4/5.0)
- Helpfulness on coursework and individual consultation: 4.8/5.0 (4.3/5.0)
- Overall effectiveness of instructor: 4.8/5.0 (4.3/5.0)

Research Advising

- Akash Harjivan (Neuroscience, The University of Chicago '24): 2023 present Project: The role of contemplative practices in aligning physics pedagogy with the true nature of science
- Matthew Chen (Economics, The University of Chicago '23): 2023 present Project: Differential impacts of traditional and contemplative practices on physics learning in higher education
- Noa Perlmutter (Cognitive Science, The University of Chicago '25): 2022 present Project: What we talk about when we talk about physics problem solving
- Andrew Feldman (Cognitive Science, Northwestern University '21): 2019 2021

Projects: Classical electrodynamics: A contemplation; Differential impacts of traditional and contemplative practices on physics learning in higher education

Currently in the School of Culture, Education, and Human Development at NYU

- Meredith Ward (Psychological Science, Vassar College '18): 2014 2018 Project: Contemplative practice in physics education: Reimagining the classical mechanics curriculum Currently in the Department of Clinical Social Work at Smith College
- Luke Mansour (Applied Mathematics/Physics, Northwestern University '20): Winter 2017. Project: Topics in contemporary cosmology

Currently an Associate at L.E.K. Consulting.

- Calais Larson (Cognitive Science, Vassar College '17): 2015Project: Contemplative practice in physics education: Reimagining the classical mechanics curriculumCurrently a Data Analyst at MIT Open Learning
- Nadav Hendel (Physics/Engineering, Vassar College '17): Summer 2015. Project: Simulating maverick dark matter production at the LHC Currently at Plenty.
- Zachary Nasipak (Physics and Astronomy, Vassar College '15): 2015Thesis: Constraining maverick dark matter with direct detection experimentsCurrently a NASA Postdoctoral Fellow at Goddard Space Flight Center
- Austin Rau (Physics and Astronomy, Vassar College '15): 2014 2015
 Thesis: Knowledge structure coherence and conceptual change in classical mechanics
 Currently at General Dynamics Mission Systems
- Timothy Serkes (Physics and Astronomy, Vassar College '14): 2014Thesis: Polarized reflection of electromagnetic waves from nonconducting surfacesCurrently at McKinsey & Company

Benjamin Wills (Cognitive Science, Vassar College '14): 2013 - 2014

Thesis: Metacognitive development in physics education

Currently in the School of History and Sociology of Technology and Science at Georgia Tech

- Alexander Stas (Mathematics, Vassar College '15): 2013
 - Project: Space—A dialogue between Tibetan Buddhism and contemporary physics
 - Currently Senior Professional Staff at The Johns Hopkins University Applied Physics Laboratory

Civic and Community Engagement

Volunteer, EveryMom Chicago, 2021 - present Instructor, Warrior-Scholar Project, 2021 – present Meditation Instructor, The University of Chicago and South Side community, 2019 – present Meditation Instructor, Winter Meditation Intensive, Dharma Ocean Foundation, 2018 – 2019 Meditation Instructor, Northwestern University, 2017 - 2019 Instructor, Lakota Girls STEM Cultural Exchange, Northwestern University, 2019 Meditation Instructor, Awakening the Body, Dharma Ocean Foundation, 2018 Instructor, Bad River Ojibwe Girls STEM Cultural Exchange, Northwestern University, 2018 Meditation Instructor, The Boundless Heart, Dharma Ocean Foundation, 2018 Volunteer, PAWS Chicago, 2017 – 2018 Meditation Instructor, Awakening the Body, Dharma Ocean Foundation, 2016 Instructor, STEM Summer Institute, Louisiana State University, 2016 Meditation Instructor, Yale University and New Haven community, 2015 – 2016 Meditation Instructor, The Body Loves, Dharma Ocean Foundation, 2016 Meditation Instructor, Vassar College and Poughkeepsie community, 2012 – 2015 Advisory Council Member, Women's Power Space, Poughkeepsie NY, 2015 Meditation Instructor, Women's Power Space, Poughkeepsie NY, 2015 Speaker, The Helix Center for Interdisciplinary Investigation, 2014 Instructor, Vassar Science Scholars Program, 2014 Instructor, A Day at Vassar, Vassar College, 2013 Volunteer, Dutchess County Jail (Women's Section), Poughkeepsie NY, 2012 – 2014 Meditation Instructor, Dutchess County Jail (Women's Section), Poughkeepsie NY, 2012 Instructor, Young Scholars, Department of Mathematics, The University of Chicago, 2010 Instructor, SMART Program, Department of Physics, The University of Chicago, 2009 – 2010 Instructor, Chicago Academic Achievement Program, The University of Chicago, 2009 Instructor, SESAME Program, Department of Mathematics, The University of Chicago, 2009 Instructor, Space Explorers, Kavli Institute for Cosmological Physics, The University of Chicago, 2008 – 2009 Instructor, Yerkes Institute, Kavli Institute for Cosmological Physics, The University of Chicago, 2007 - 2009 Language Instructor, Rassias Foundation, Dartmouth College, 2004 - 2006 Instructor, English High School, Boston MA, 2005 Instructor, Cambridge-Harvard Summer Academy, Harvard University, 2005

Language Instructor, Department of Middle Eastern Studies, Dartmouth College, 2003 – 2005 Instructor, Woodstock Correctional Facility, Woodstock VT, 2000 – 2002 Volunteer, Orphanage of the Sisters of Mother Teresa, Cairo, Egypt, 1998 – 2000

Continuing Education

Center for Trauma and Embodiment

Healing Trauma Through Yoga (5 hrs), 2022 Trauma Sensitive Yoga (20 hrs), 2023

Darkness to Light

Stewards of Children (2 hrs), 2023
Healthy Touch for Children and Youth (1 hr), 2023
Protecting Children through Active Bystanding (1 hr), 2023
Recognizing and Reporting Child Abuse and Neglect (1 hr), 2023
Talking with Children about Safety from Sexual Abuse (1 hr), 2023

Dharma Ocean Foundation

Meditation Teacher Training (200 hrs), 2015 Meditating with the Body Teacher Training (100 hrs), 2015

Mindsight Institute

Attachment Theory in Clinical Practice (2 hrs), 2021 Cross Generational Trauma (1 hr), 2022 Attachment, Trauma, and Psychotherapy (11 hrs), 2023

National Institute for the Clinical Application of Behavioral Medicine

How to Work with Emotional Triggers, 2022 How to Work with Shame, 2023 Working with Deep-Seated Resentment, 2023

Santosha Yoga Institute

RYT-200 Yoga Teacher Training Certification (200 hrs), 2022 Yin Yoga Teacher Training (50 hrs), 2023

Somatic Experiencing International

Basic Principles of Somatic Experiencing (3 hrs), 2023 The Somatic Approach to Struggling with Long-COVID (2 hrs), 2023

The University of Chicago Crown Family School of Social Work, Policy and Practice

Human Behavior in the Social Environment (SSAD 327), 2021

Self Awareness and Social Work with Diverse Populations (SSAD 441), 2022

Social Intervention: Programs and Policies (SSAD 300), Autumn 2023

Youth Trauma Work: Integrating Neurobiology and Anti-Adultism in Contextual Practice (SSAD 442), Autumn 2023

Languages

Native: Swedish. Fluent: English. Advanced: French, Italian. Intermediate: Arabic, Portuguese, Spanish. Elementary: Russian.