# Vera Gluscevic

Curriculum Vitae (Sep. 2025)

University of Southern California
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https://veragluscevic.github.io/

Publications

93 publications; 10,720 total citations (9,481 since 2020); **h-index 45** (Google Scholar, as of Sep. 25, 2025). Full manuscript list available here. ORCID: 0000-0002-3589-8637.

Current Research Interests

Cosmological and astrophysical probes of new physics, including dark matter and neutrino physics. Near-field cosmology and galaxy formation and evolution. Computational methods and machine learning applications in astrophysics. Cosmological simulations. Probabilistic inference and forward modeling in physics. Cosmic microwave background theory and analysis.

Appointments

- 2025–2026 Institute for Advanced Study, Princeton, NJ
  - o Sabbatical Member, School of Natural Sciences.
- 2025–2026 Center for Computational Astrophysics, Flatiron Institute, New York
  - Sabbatical Visitor.
- 2019-Present University of Southern California, Department of Physics and Astronomy, Los Angeles, CA
  - Associate Professor (with tenure; 2024-Present).
  - o Gabilan Assistant Professor (2019-2024)
  - 2023 California Institute of Technology, Physics, Mathematics and Astronomy, Pasadena, CA
    - Visiting Associate in Theoretical Astrophysics
  - 2018–2019 Princeton University, Department of Physics, Princeton, NJ
    - o Visiting Research Scholar
- Summer 2017 Carnegie Observatories, Pasadena, CA
  - Visiting Research Scholar
  - 2013–2018 Institute for Advanced Study, Princeton, NJ
    - o Postdoctoral Member
    - Eric Schmidt Fellow (2016-2018)
    - Maternity leave (summer 2013; spring 2017)

### Education

- Jun 2013 Ph.D. in Astrophysics, California Institute of Technology, Pasadena, CA
  - Thesis: CMB as a Probe of New Physics and Old Times.
  - o Adviser: Prof. Marc Kamionkowski.
- Jun 2007 B.S. in Astrophysics, University of Belgrade, Belgrade, Serbia
  - Award "Prof. Zaharije Brkic" (for the best student in class of 2007).

#### Awards and Honors

- 2025 Scialog Award, RCSA.
- 2024 Scialog Fellow, RCSA.
- 2024 Nomination for the NSF Alan T. Waterman Award, USC Dornsife College.
- 2023 CAREER Award, National Science Foundation.
- 2023 Cottrell Scholars Award, Research Corporation for Science Advancement.
- 2022 Albert S. Raubenheimer Outstanding Junior Faculty Award, University of Southern California.
- 2019-2024 Gabilan Assistant Professorship, University of Southern California.
- 2016-2018 Eric Schmidt Fellowship, Institute for Advanced Study, Princeton.
  - **Zaharije Brkic Student of the Generation Award**, University of Belgrade, Serbia.
  - 2006 Excellence in Undergraduate Studies Award, Serbian Ministry of Education.
- 2004, 2005 Excellence in Studies Award, Faculty for Mathematics, University of Belgrade.

## External funding

- John Templeton Foundation Grant, \$3.96M (Project Lead). Multidisciplinary Research Hub. Participating institutions: USC (Dornsife, Viterbi, Cinema), UCR, Carnegie Observatories. Project: "Growing a Universe from Quantum Scales: Discovery at the Intersection of Cosmology, Epistemology, and Interactive Visual Media," Award period: 12/2025-12/2028.
- Scialog Award, \$66,000 (Institutional PI). RCSA. Award period: 02/2025-02/2027.
- NSF-Astronomy and Astrophysics Grants, \$759,245 (Institutional PI). Award number: AST-2407380. Award period: 11/2024-11/2027.
- RCSA Cottrell Collaborative Award, \$25,000 (PI). Award period: 08/2024-08/2026. Title: "AI Research Coach."
- NSF CAREER Award, \$400,000 (Single PI). Award number: PHY-2239205. Award period: 08/2023-08/2028. Title: "Discovering the Microphysics of Dark Matter with Cosmology."
- Cottrell Scholars Award, \$100,000 (Single PI). Award period: 2023-2026. Title: "Discovering Dark Matter with Cosmology."
- NSF-Particle Astrophysics and Cosmology-Theory, \$225,000 (Single PI). Award number: PHY-2013951. Award period: 09/2020-08/2023. Title: "Probing Dark Matter Physics Throughout Cosmic History."
- NASA Astrophysics Theory Program, \$545,084 (PI). Award number: 21-ATP21-0135.

- Award period: 06/2022-07/2025. Title: "Cosmological Signals of Light Dark Matter: New Predictions and Connections."
- 2025 Sloan Foundation Film Grant Award (Science adviser). Short film title: "Invisible yet Shattering." PI: Ann Anlan Tao (USC School of Cinematic Arts).
- 2024 Sloan Foundation Film Grant Award (Science adviser). Short film title: "Eclipse." PI: Ziqi Yang (USC School of Cinematic Arts).
- 2023 Sloan Foundation Games Grant Award (Science adviser). Augmented-reality Game: "Asterist." Co-Is: Sammy Chuang, Martzi Campos, Sean Bouchard (USC School of Cinematic Arts).

### Teaching

- Spring 2020 Cosmology (ASTR 424), Upper-division course for physics and astronomy majors, Department of Physics and Astronomy, USC
- Spring The Universe (ASTR 100), General Education Course, Department of Physics 2021-2025, and Astronomy, USC Fall 2021,
  - Fall 2022 Advanced Cosmology (ASTR 540), Graduate course, Department of Physics and Astronomy, USC
  - Fall 2024, Physics Discovery Series with Programming Practicum (PHYS 190), 2025 Undergraduate course, Department of Physics and Astronomy, USC
- Summer 2023 Michigan Cosmology Summer School 2023, Ann Arbor, Michigan, Invited Lecturer.
  - Spring 2021 International School of Astroparticle Physics (ISAPP), DARK MATTER: From theory to detection, Vienna, Austria, Invited Lecturer
    - 2020-2022 Physics Capstone Project (PHYS 495), Senior project for physics/computer science majors, Department of Physics and Astronomy, USC
- Summer 2010 Forces and Rocketry, Summer course, Wilson Middle School, Pasadena, CA
  - Teaching Assistant, California Institute of Technology
     Ay101: Physics of Stars, Fall 2008, (Prof. L. Hillenbrand); Ay21: Galaxies and Cosmology,
     Winter 2008 (Prof. C. Steidel); Ay1 Section instructor: The Evolving Universe, Spring 2009 (Prof. N. Scoville): Astrobiology; Ph1 Section instructor: Introductory Course in Newtonian Mechanics, Fall 2010 (Prof. J. Zmuidzinas).

#### Mentoring

#### 2020-Present Postdoctoral adviser

- o Dr. Ethan Nadler (2021-2024; faculty at UCSD)
- o Dr. Rui An (2020-2024)
- o Priyank Parashari (2024)
- Helena Garcia Escudero (2025)

#### 2019-Present Ph.D. thesis adviser

- o George (Trey) Driskell (PhD 2025)
- o Adam He (PhD 2025)
- o Aryan Rahimieh (PhD 2025)
- Wendy Crumrine (PhD Candidate 2025)
- Sasha Mintz (NSF Fellow)
- o Jeisson Pulido (NSF Fellow)
- o James Wen
- o Arif Chu
- o Runa Indrei

#### 2019-Present Undergraduate student advisor

- Rhea Richards (USC, class of 2028)
- o Dongpo Bai (USC, class of 2026)
- Lucy Retterer (USC, class of 2025)
- o Logan White (North Carolina State University, summer 2023)
- o Israel Biniam (Montgomery College, summer 2022; GEM fellowship 2023)
- Nyal McCrea (Central Washington University; summer 2021)
- Ezra Msolla (University of Toronto)
- o James Wen (USC, class of 2024)
- o Julie Xue (USC, class of 2023; now USC Physics and Astronomy PhD program 2023)
- Resherle Verna (USC, class of 2020; now GEM fellowship and UT Austin Astronomy PhD program)
- Arjun Bamba (USC, class of 2022; capstone project)
- Shuxing Fang (USC, class of 2022, capstone project)
- o David Nguyen (USC, class of 2021; now Yale Physics PhD program)
- o Dimple Sarnaaik (USC, class of 2021; now USC Physics and Astronomy PhD program)
- o Connor Powers (USC, class of 2021; now University of Maryland Physics PhD program)
- o Brenda Zhou (USC, class of 2021)
- o Francisco Silva Pavon (USC, class of 2021; capstone project)
- Praayas Aggarwal (USC, class of 2021; capstone project)
- Karime Maamari (USC, class of 2020; positions at Argonne national lab, NASA Langley Research Center, now USC Physics and Astronomov PhD program)
- Christian Glover (USC, class of 2020)

#### 2022–2023 High school student mentor

- o Mansour Doumbia (Bronx High School of Science, summer 2022)
- o Simran Dhillon (Royal High School in Simi Valley; spring/summer 2023)

#### 2016-2020 External project advisor (graduate students)

Jack Lashner (USC, 2020), Ethan Nadler (Stanford, 2019), Zack Li (Princeton, 2017/18), Samuel Witte (UCLA, 2016).

## 2015-2018 Undergraduate Summer Research Program (USRP) Adviser, Department of Astrophysical Sciences, Princeton University

- Aizhan Akhmetzhanova (Non-linearities in interacting cosmologies; Summer/Fall 2018.)
- Emery Trott (CMB-S4 sensitivity to dark matter interactions; Summer 2017.)
- Katelyn Neese (Annual modulation as a model-selection tool; Summer/Fall 2015.)

#### 2011-2013 Astronomy peer mentoring program, California Institute of Technology

o Mentored junior grad students: Melodie Kao, Io Kleiser.

## Summer 2010 Summer Undergraduate Research Fellowship (SURF) Program, California Institute of Technology

• Co-advised student: Jason Sanders (Constraining cosmic birefringence with AGN.)

Service at USC

- 2019-Present USC-Carnegie Liaison, for Physics and Astronomy Department.
- 2024-Present Curriculum Committee, Physics and Astronomy.
- 2024-Present Faculty Merit Evaluation Committee, Physics and Astronomy.
- 2024-Present Faculty Affairs Caucus, advisory body to Dornsife College Faculty Council.
  - 2024 Departmental Faculty Review and Mentoring Committee, chair, for Assist. Prof. Kris Pardo.
  - 2024 USC Merit Scolarship Committee, Interviewer.
- 2022-Present USC Cosmology Fundraising, founder and faculty lead.
  - Raised funds for the first USC Cosmology Colloquium and Visitor series.
  - Secured private funds for the first USC Physics and Astronomy Department endowed Postdoctoral Fellowship (in cosmology).
- 2023-Present Annual Cosmolab Open House for Undergrads, faculty coordinator.
  - 2023–2024 Dornsife Women in Science and Engineering (WiSE) PhD Advisory Board, faculty mentor.
  - 2021–2024 Climate Committee, Physics and Astronomy
    - Founder and inaugural chair.
  - 2021–2023 Faculty Liaison for Graduate Students, Physics and Astronomy.
  - 2019–2023 Graduate Curriculum committee, Physics and Astronomy.
  - 2021, 2023 Faculty Search committees, Physics and Astronomy
  - 2020, 2021, Graduate Student Admissions, Physics and Astronomy
    - 2022 Review of applications, student interviews
      - CosmoLab student visit organization

#### 2021-Present Student Thesis Committees

- Physics and Astronomy: Kamal Oudhriri (Candidacy Committee 2024, USC Viterbi),
   Jack Lashner (Thesis Committee 2022), Armen Tokadjian (Thesis Committee 2024,
   Candidacy Committee 2021), Anastasia Haynie (Thesis Committee 2024, Candidacy Committee 2021),
   Jason Williams (Thesis Committee 2023),
   Hoa Trinh (Candidacy Committee 2023)
- 2021-Present USC Astrophysics Seminar, co-organizer, USC Physics and Astronomy
  - 2019-2020 USC Physics and Astronomy Colloquium Committee, chair.
- 2019–Present USC Women in Physics, founder and faculty adviser.
  - 2019–2020 Bylaws committee, Physics and Astronomy
  - 2019, 2020 Physics Student Welcome Forum, panelist, Physics and Astronomy
    - 2020 USC Physics Festival, panelist, Physics and Astronomy

## External Service and Leadership

- 2025 **Journal of Cosmology and Astroparticle Physics**, *editor*, accepted to start September 2025.
- 2025 Cosmology Summer Fest, coorganizer, JHU, Baltimore
- 2024 Kavli Institute for Theoretical Physics (KITP) Long-Term Program (Summer 2024), Lead organizer.
  - o Topic: Dark Matter Theory, Simulation, and Analysis in the Era of Large Surveys.
  - $\circ\:$  Lead of the proposal and head organizer of a 2-month program.
  - o https://www.kitp.ucsb.edu/activities/darkmatter24
- 2024 Primordial Physics with a Stage-V Spectroscopic Facility, LBNL
  - Scientific organizing committee.
- 2024 DOE Proposal Review
  - o Panelist.
- 2023 Consortium of Undergraduate Women in Physics (CuWiP), Southern California edition, USD
  - o Panelist.
- 2023 Mini-workshop: Dark Matter in SoCal, USC
  - o Organizer.
- 2021-Present NASA PhysPAG Executive Committee
  - NASA Physics of the Cosmos Program Analysis Group (PhysPAG) elected member of the Executive Committee and Co-chair of the Cosmic Structures Science Interest group.
- 2018-Present Simons Observatory Collaboration
  - Founding member, helped formulate science goals and design of the original experiment.
  - USC Institutional Point-of-Contact (2022-Present)
  - Analysis pipeline development co-lead (2018-2020)
  - Likelihood and Theory working group co-lead (2019-2021)
- 2018-Present CMB-S4 Collaboration
  - Founding member for the proposed next-generation ground-based CMB experiment.
  - Member of the Science Council (2018-2020)
  - Lead of the Dark Matter working group (2018-2020)
  - Membership Committee (2022-2023)
- 2013–Present Journal referee: Physical Review D, Physical Review Letters, Journal of Cosmology and Astroparticle Physics.
  - 2022 DOE Office of Science Graduate Student Research (SCGSR) Program
     Proposal Review.
  - 2016, 2020, NSF proposal review, Astronomy and Astrophysics Program and Astro-Particle
    - 2022 and Cosmology Program, panelist.
  - 2020, 2023 NASA proposal review, TCAN, APRA, and ADAP programs, panelist.

- 2021 Snowmass21, particle physics community planning process
  - Principal author of a Letter of Interest "Cosmic Probes of Dark Matter Interactions: Challenges for Theory and Analysis", submitted to Snowmass Cosmic Frontiers working group, August 2020.
  - CF3 Topical Group Report Co-author "Cosmic Probes of Dark Matter."
- 2019 Astro2020 Decadal Survey, community input coordination
  - Principal author of science white paper "Cosmological Probes of Dark Matter Interactions: The Next Decade", submitted to the National Academies, March 2019 [ArXiv:1903.05140].
  - Key contributor to four science white papers, submitted to the National Academies, March 2019. (https://sites.nationalacademies.org/SSB/CurrentProjects/SSB\_ 185159)
  - Key contributor to three project white papers (Simons Observatory, CMB-S4, PICO).
- 2015–2018 Institute for Advanced Study (IAS) Committee on Diversity, Princeton
  - Invited postdoctoral representative.
  - o Results: Establishment of IAS Parental Leave Policy.
- Nov 2022 New Physics from Galaxy Clustering, Theory Institute at CERN, co-organizer.
- Aug 2021 COSMO21 conference (online), invited co-convener.
- 2019–2020 USC Physics and Astronomy Colloquium, organizer.
- Aug 2019 COSMO19 conference in Aachen, Germany, invited co-convener.
- Jun 2019 AAS meeting-in-a-meeting on Dark Matter, St. Louis, MO, organizer.
- 2014-2015 IAS Informal Seminar, organizer.
- 2012-2013 "CMB Tea" meetings for Caltech Cosmology Group, founder and organizer.

#### Outreach

- July 2025 Short Story for The Academic Minute (broadcast on NPR affiliates) on COZMIC simulation; https://academicminute.org/.
- June 2025 Dornsife Magazine interview, Life Edition.
- March 2025 Solar Physics stand by USC Cosmolab and WiP+, Science fiction festival, O. E. Buttler Middle School, Pasadena Unified School District.
  - Sep 2024 USC Media Office, podcast "Lightbulb Moments." (https://podcasts.usc.edu/).
- August 2023 USC Sidney Harman Academy for Polymathic Study, panel "A Revival of Curiosity: Searching the Universe, Searching Ourselves" (https://polymathic.usc.edu).
  - July 2023 Discovery Project at USC, "Can you touch a galaxy?" (audience: 5-9th grade students; https://sites.usc.edu/discoveryproject/).
  - Dec 2021 USC Dornsife Magazine: A Cosmic Conversation, Interview.
  - Jan 2021 Nature and Nurture Podcast (previously Res Cogitans), Interview.
  - Feb 2020 Society of Physics Students, USC Chapter, Speaker.

- Dec 2019 Students for the Exploration and Development of Space (SEDS), USC Chapter, Speaker (talk: *The cosmological hunt for dark matter*).
- Jun 2020 Physics Festival at USC, Panelist
- Mar 2018 Institute for Advanced Study (IAS) After Hours Conversations, talk: Did we discover evidence for dark matter collisions at the dawn of first stars?
- Oct 2016 Lunch with a Member, talk for the Friends of the IAS: Cosmic microwave back-ground: a cosmologist's discovery tool.
- Mar 2016 IAS After Hours Conversations, talk: What is dark matter?
- Sep 2015 IAS Staff Welcome Reception, presentation on current research.
- Dec 2014 Princeton Amateur Astronomer's Association (AAAP), public talk: *How do you* "catch" dark matter?
- Aug 2013 Public lecture, Belgrade Planetarium, Serbia: Glow of the past: Story of the CMB (Sjaj proslosti: Prica o mikrotalasnoj kosmickoj pozadini).
- Spring 2012 "The 2012 Venus Transit at Caltech" public outreach program: volunteer.
- Summer 2009 "Letenka" astronomy summer camp, Fruska Gora, Serbia: Invited consultation session for Serbian undergraduates interested in studying abroad.
  - 2003-2013 Magazine "Astronomija" for popularization of Astronomy and Science, Novi Sad, Serbia: columnist and foreign correspondant.
  - 2001-2003 Belgrade Public Observatory and Planetarium, Serbia: junior assistant.

## Invited Talks and Workshops (since 2019)

- Nov. 2025 Axions in Japan (invitation by Elisa Ferreira and Andrew Eberhardt), Japan, invited plenary talk.
- Sep. 2025 "New Physics from Galaxy Clustering", Galileo Galilei Institute, Florence, Italy; declined due to travel concerns. (invitation by Marko Simonovic)
- July 2025 Cosmic Ecosystems, Perimeter Institute, Canada, invited plenary talk.
- June 2025 XVIIIth International Conference on the Interconnection between Particle Physics and Cosmology (PPC2025), The Institute for Underground Science, Sanford Underground Research Facility, Deadwood, South Dakota, invited plenary talk.
- June 2025 Dark Matter 2025: From the Smallest to the Largest Scale, Santander, Spain (invitation by Bradley Kavanagh), invited plenary talk.
- June 2025 Valencia Workshop on the Small-Scale Structure of the Universe and Self-Interacting Dark Matter, Valencia, Spain (invitation by Giulia Despali)
- Apr. 2025 Cosmological Probes of New Physics: Harnessing the Potential of Current and Future Experiments, University of Notre Dame, IN (invitation by Yuhsin Tsai), invited plenary talk.
- March 2025 Dark Matter Conference, UCLA, Los Angeles; invited plenary talk (invitation by Tomasso Treu).

- March 2025 Particles vs. New Probes (P vs. NP), Flatiron Institute, Center for Computational Astrophysics (CCA), NYC; invitation-only workshop (invitation Mariangela Lisanti).
  - Feb. 2025 SoCal Dark Matter Workshop, UCI, invited participant.
  - Jan. 2025 2025 IAS Program on Fundamental Physics, Hong Kong, declined invited talk.
  - Jan. 2025 TMEX2025 in Vietnam, declined invited talk.
  - 16-18 Jan. Neutrinos in Physics and Astrophysics, Berkeley, California. Celebrating Baha
    - 2025 Balantekin (Wisconsin) and George Fuller (San Diego). Declined because of LA wildfires.
  - Jun 2025 Plenary talk at CosmoVerse@Istanbul 2025, Turkey (invitation by Jackson Said), declined.
  - Nov 2024 Early Science with LSST, Scialog, Research Corporation for Science Advancement, Tucson, AZ.
  - Oct 2024 Physics Colloquium, University of Washington, WA.
  - Oct 2024 Physics and Astronomy Colloquium, UC Riverside, CA.
  - Oct 2024 Dark Interactions 2024, Vancouver, CA.
  - Aug 2024 PACIFIC 2024 Particle Astrophysics and Cosmology Including Fundamental InteraCtions, Moorea, Tahiti (Invitation by Alex Kushenko)
  - Aug 2024 TeV Particle Astrophysics Conference (TeVPA; plenary talk), Chicago, IL.
  - Jun 2024 Dark Matter Theory, Simulation, and Analysis in the Era of Large Surveys, KITP, UCSB (lead program organizer).
  - Apr 2024 Astrophysics Colloquium, University of Arizona.
  - Apr 2024 Physics Colloquium, University of California, San Diego (UCSD).
  - Oct 2023 Brookhaven Forum 2023: Advancing Searches for New Physics, Brookhaven National Laboratory; plenary talk (virtual).
  - Sep 2023 Physics and Astronomy Depratment Colloquium, USC.
  - Jun 2023 Self Interacting Dark Matter: Models, Simulations and Signals, Pollica, Italy; workshop and talk.
  - May 2023 Mitchell Conference on Collider, Dark Matter, and Neutrino Physics; George P. and Cynthia Woods Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, TX.
  - Mar 2023 UCLA Dark Matter 2023 conference.
  - Mar 2023 Simons Center Program on BSM physics Lighting new Lampposts for Dark Matter and Beyond the Standard Model, Stony Brook, NY.
  - Mar 2023 The Less Travelled Path to the Dark Universe, International Centre for Theoretical Sciences (ICTS), Bangalore, India.
  - Nov 2022 Workshop on Primordial Physics with Spectroscopic Surveys, UC San Diego.
  - Oct 2022 Carnegie Observatories Colloquium, Pasadena, CA.

- Jun 2022 SYNCRETISM 2022 Symposium: Particle physicists dining with Astrophysicists, Crete, Greece.
- Apr 2022 Workshop on Novel Hidden Sectors: From Colliders to Cosmology, Garching, Germany.
- Oct 2021 Racontres the Blois Conference, France, invited plenary talk, turned down invitation due to COVID-19 travel restrictions.
- Oct 2021 Perimeter Institute Astrophysics Seminar (via zoom).
- Aug 2021 Summer workshop on Dark Matter, Aspen.
- Jul 2021 International School of Astroparticle Physics (ISAPP) "DARK MATTER: from theory to detection," Vienna, Austria (via zoom).
- May 2021 XIV International Conference on Interconnections between Particle Physics and Cosmology (via zoom).
- May 2021 TRIUMF Astrophysics Seminar (via zoom).
- Apr 2021 DKM LSST, Vera Rubin Observatory dark matter meeting (via zoom).
- Mar 2021 OKC Colloquium, Stockholm (via zoom).
- Mar 2021 Astronomy Colloquium, UC Riverside (via zoom).
- Dec 2020 Astronomy Seminar, UC Davis (via zoom).
- Nov 2020 Cal State LA, Astronomy Colloquium (via zoom).
- Oct 2020 Workshop on Global 21-cm signal, Cambridge, UK (via zoom).
- Oct 2020 XIX Serbian Astronomy Conference.
- Oct 2020 Caltech/JPL Cosmology Seminar.
- Aug 2020 Cosmology Seminar, Fermilab.
- Jul 2020 Invited follow-on visit, Kavli Institute for Theoretical Physics, Santa Barbara (cancelled due to COVID); Title: *Millicharged dark matter on small scales*.
- Jun 2020 News from the Dark, Workshop (by invitation only), Strasbourg, France (via Zoom, due to COVID).
- May 2020 Invited plenary talk, 32nd Rencontres de Blois Particle Physics and Cosmology Conference, Chateau de Blois, France (cancelled due to COVID).
- Mar 2020 UCLA Dark Matter 2020 conference (cancelled due to COVID).
- Mar 2020 Cosmology/Astrophysics Seminar, South Methodist University (via Zoom.
- Feb 2020 Colloquium, Mitchell Institute, Texas A&M University.
- Feb 2020 Theory Thursday, Carnegie Observatories, Pasadena.
- Dec 2019 Kavli Institute for Theoretical Physics (KITP) Seminar, UCSB.
- Nov 2019 Astronomy Colloquium, UCLA.
- Oct 2019 2nd Global 21-cm signal, Workshop, McGill University.
- Oct 2019 Working group lead status report, CMB-S4 collaboration meeting.
- Aug 2019 LSST Dark Matter Workshop, University of Chicago.

Jun 2019 New Directions in the Search for Light Dark Matter Particles, Conference, Fermilab.

Jan 2019 Dunlap Institute Colloquium, University of Toronto.

Code

Open source code available at https://github.com/veragluscevic/. Languages: python, cython, C, Mathematica, MATLAB. Packages: MultiNest, HEALPix, CAMB, 21CMFast, CosmoMC, CLASS, Monte Python.

References

Prof. Marc Kamionkowski (kamion@pha.jhu.edu) - thesis adviser.

Prof. Jo Dunkley (jdunkley@princeton.edu) - postdoctoral mentor.

Prof. Dragan Huterer (huterer@umich.edu) - non-collaborator, in the field.

Publications in Peer-Review Journals (Lead/Key Contributor) (last update Aug. 2025)

Below is a list of peer-reviewed publications which V. Gluscevic and her group led, or on which she was a key senior contributor. Publications that are currently under review but available online are marked as "submitted for publication." Advisees (students or postdocs) are indicated by an asterisk. All roles are defined at the time project was initialized.

- Rahimieh, Aryan\*, Parashari, P.\*, Gluscevic, V. "Forecasting 21-cm Power Spectrum Sensitivity to Dark Matter-Baryon Scattering." MNRAS, August 2025. https://doi.org/10.48550/arXiv.2505.03148
- o Nadler, E. O.\*, **Gluscevic**, **V.**, Benson, A. "The Effects of Linear Matter Power Spectrum Enhancement on Dark Matter Substructure." arXiv:2507.16889. ApJ, submitted, 2025. https://doi.org/10.48550/arXiv.2507.16889
- Nadler, E. O.\*, An, R.\*, Yang, D., Yu, Hai-Bo, Benson, A, Gluscevic, V. "COZMIC. III. Cosmological Zoom-in Simulations of Self-interacting Dark Matter with Suppressed Initial Conditions." arXiv:2412.13065. The Astrophysical Journal, Volume 986, Issue 2, id.129, 26 pp., 2025.

https://doi.org/10.48550/arXiv.2412.13065

• Rahimieh, Aryan\*, Parashari, P.\*, An, R.\*, Driskell, T.\*, Mirocha, J., **Gluscevic, V.** "Sensitivity of the Global 21-cm Signal to Dark Matter-Baryon Scattering." arXiv.2505.03148. Submitted to JCAP.

https://doi.org/10.48550/arXiv.2505.03148

- He, A.\*, Ivanov, M., An, R.\*, Driskell, T.\*, Gluscevic, V. "Bounds on velocity-dependent dark matter-baryon scattering from large-scale structure." arXiv.2502.02636. Journal of Cosmology and Astroparticle Physics, Volume 2025, Issue 05, id.087, 60 pp., 2025. https://doi.org/10.48550/arXiv.2502.02636
- Fischer, M., Dolag, K., Garny, M., **Gluscevic, V.**, Groth, F., Nadler, E.O.\* "N-body simulations of dark matter-baryon interactions." arXiv:2504.12393. accepted for publication in A&A, 2025.

- https://doi.org/10.48550/arXiv:2504.12393
- He, A.\*, Ivanov, M., Bird, S., An, R.\*, Gluscevic, V. "A Fresh Look at Neutrino Self-Interactions With the Lyman-alpha Forest: Constraints from EFT and PRIYA." arXiv:2503.15592.
   Submitted to PRD, 2025.
  - https://doi.org/10.48550/arXiv:2503.15592
- Calabrese, E. and the ACT Collaboration, including An, R.\*, Gluscevic, V. "The Atacama Cosmology Telescope: DR6 Constraints on Extended Cosmological Models." JCAP, 2025. https://doi.org/10.48550/arXiv:2503.14454
- o An, R.\*, Nadler, E. O.\*, Benson, A. **Gluscevic, V.** "COZMIC. II. Cosmological Zoom-in Simulations with Fractional non-CDM Initial Conditions." arXiv.2411.03431. ApJ, 986, 128 (2025).
  - https://doi.org/10.48550/arXiv.2411.03431
- Driskell, T.\*, Nadler, E.\*, Benson, A. Gluscevic, V. "Population synthesis and astrophysical inference for high-z JWST galaxies." arXiv:2410.11680. Physical Review D, under review, 2024. https://doi.org/10.48550/arXiv.2410.11680
- Nadler, E.\*, An, R.\*, Gluscevic, V., Benson, A., Du, X. "COZMIC. I. Cosmological Zoom-in Simulations with Initial Conditions Beyond CDM." arXiv:2410.03635. ApJ, 986, 127 (2025) https://doi.org/10.48550/arXiv.2410.03635
- o Crumrine, W.\*, Nadler, E.\*, An, R.\* **Gluscevic, V.** "Dark Matter Coupled to Radiation: Limits from the Milky Way Satellites." arXiv.2406.19458. Phys. Rev. D 111, 023530 (2025). https://doi.org/10.1103/PhysRevD.109.123522
- o An, R.\*, Boddy, K., **Gluscevic, V.** "Interacting light thermal-relic dark matter: Self-consistent cosmological bounds." arXiv.2402.14223. Physical Review D, Volume 109, Issue 12, article id.123522, June 2024.
  - https://doi.org/10.1103/PhysRevD.109.123522
- Nadler, E.\*, Gluscevic, V., Driskell, T.\*, Wechsler, R., Moustakas, L., Benson, A., Mao, Y.
   "Forecasts for Galaxy Formation and Dark Matter Constraints from Dwarf Galaxy Surveys." arXiv.2401.10318. The Astrophysical Journal, Volume 967, Issue 1, id.61, 34 pp., May 2024. https://doi.org/10.3847/1538-4357/ad3bb1
- o Rui, A.\*, **Gluscevic, V.** "Reconstructing the early-universe expansion and thermal history." arXiv:2310.17195. Physical Review D, Volume 109, Issue 2, article id.023534, January 2024. https://doi.org/10.1103/PhysRevD.109.023534
- He, A.\*, Rui, A.\*, Ivanov, M., Gluscevic, V. "Self-Interacting Neutrinos in Light of Large-Scale Structure Data." arXiv:2309.03956. Physical Review D, Volume 109, Issue 10, article id.103527, May 2024.
  - https://doi.org/10.1103/PhysRevD.109.103527
- o Rui, A.\*, **Gluscevic, V.**, Nadler, E. O.\*, Zhang, Y. "Can Neutrino Self-interactions Save Sterile Neutrino Dark Matter?" arxiv:2301.08299. ApJ Letters, Volume 954, Issue 1, Pages L18, September 2023.
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  - Selected Large-Collaboration Publications (last update Aug. 2025)

Below are listed peer-reviewed publications to which V. Gluscevic made minor contributions as a member of a large collaboration.

- Pandey, S. and the ACT Collaboration, including Gluscevic, V. 2025. "Constraints on cosmology and baryonic feedback with joint analysis of Dark Energy Survey Year 3 lensing data and ACT DR6 thermal Sunyaev-Zel'dovich effect observations." arXiv:2506.07432. Submitted for publication.
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- Sailer, N. and the ACT Collaboration, including Gluscevic, V. 2025. "Cosmological constraints from the cross-correlation of DESI Luminous Red Galaxies with CMB lensing from Planck PR4 and ACT DR6." arXiv:2407.04607. Journal of Cosmology and Astroparticle Physics, Volume 2025, Issue 06, id.008, 69 pp., 2025.
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- Qu, F. and the ACT Collaboration, including Gluscevic, V. 2025. "Atacama Cosmology Telescope DR6 and DESI: Structure growth measurements from the cross-correlation of DESI legacy imaging galaxies and CMB lensing from ACT DR6 and Planck PR4." arXiv:2410.10808. Physical Review D, Volume 111, Issue 10, id.103503, 35 pp., 2025.
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- o McCarthy, F. and the ACT Collaboration, including **Gluscevic**, **V.** 2025. "The Atacama Cosmology Telescope: Large-scale velocity reconstruction with the kinematic Sunyaev-Zel'dovich effect and DESI LRGs." arXiv:2410.06229. Journal of Cosmology and Astroparticle Physics, Volume 2025, Issue 05, id.057, 38 pp., 2025.

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• Naess, S. and the ACT Collaboration, including **Gluscevic**, **V.** 2025. "The Atacama Cosmology Telescope: DR6 Maps." arXiv:2503.14451. JCAP, 2025.

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• Besuner, R. and the Spec-S5 Collaboration, including **Gluscevic**, **V.** 2025. "The Spectroscopic Stage-5 Experiment." arXiv:2503.07923.

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The Simons Observatory Collaboration, including Gluscevic, V. 2025. "The Simons Observatory: Science Goals and Forecasts for the Enhanced Large Aperture Telescope." arXiv:2503.00636, JCAP 2025.

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• Kim, J. and the ACT Collaboration, including **Gluscevic**, **V.** 2025. "The Atacama Cosmology Telescope DR6 and DESI: structure formation over cosmic time with a measurement of the cross-correlation of CMB lensing and luminous red galaxies." arXiv:2407.04606. Journal of Cosmology and Astroparticle Physics, Volume 2024, Issue 12, id.022, 48 pp., 2025.

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 Coulton, W. R. and the ACT Collaboration, including Gluscevic, V. 2023. "The Atacama Cosmology Telescope: High-resolution component-separated maps across one-third of the sky." arXiv:2307.01258. Submitted for publication.

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Marques, G. A. and the ACT Collaboration, including Gluscevic, V. 2023. "Cosmological constraints from the tomography of DES-Y3 galaxies with CMB lensing from ACT DR4." arXiv:2306.17268. Submitted for publication.

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## Selected White Papers

The list of white papers or non-referred e-print science books to which V. Gluscevic contributed, or had a leading role (leading authorship indicates the PI role in this section).

- o Drlica-Wagner, A. and 39 colleagues et al., including **Gluscevic**, **V.** 2022. "Report of the Topical Group on Cosmic Probes of Dark Matter for Snowmass 2021." arXiv:2209.08215v1
- Gluscevic, V. and 18 colleagues 2019. Cosmological Probes of Dark Matter Interactions: The Next Decade. Bulletin of the American Astronomical Society 51.
- o Abazajian, K and 355 colleagues et al., including **Gluscevic**, **V.** 2022. "Snowmass 2021 CMB-S4 White Paper." arXiv:2203.08024
- o Mao, Y. Y. and 32 colleagues including **Gluscevic**, **V.** 2022. "Snowmass2021: Vera C. Rubin Observatory as a Flagship Dark Matter Experiment." arXiv:2203.07252
- o Dvorkin, C. and 12 colleagues et al., including **Gluscevic**, **V.** 2022. "Dark Matter Physics from the CMB-S4 Experiment." arXiv:2203.07064

- o Banerjee, A. and 17 colleagues et al., including **Gluscevic**, **V.** 2022. "Snowmass2021 Cosmic Frontier White Paper: Cosmological Simulations for Dark Matter Physics." arXiv:2203.07049
- Boddy, K. K. and 18 colleagues et al., including Gluscevic, V. 2022. "Astrophysical and Cosmological Probes of Dark Matter." arXiv:2203.06380
- The CMB-HD Collaboration et al., including **Gluscevic**, **V.** 2022. "Snowmass2021 CMB-HD White Paper." arXiv:2203.05728
- Hanany, S. and 80 colleagues including **Gluscevic**, **V.** 2019. "PICO: Probe of Inflation and Cosmic Origins." arXiv:1908.07495
- Abazajian, K. and 226 colleagues including **Gluscevic**, **V.** 2019. "CMB-S4 Decadal Survey APC White Paper." arXiv:1908.01062
- The Simons Observatory Collaboration and 282 colleagues including **Gluscevic**, **V.** 2019. "The Simons Observatory: Astro2020 Decadal Project Whitepaper." arXiv:1907.08284
- o Grin, D. and 7 colleagues including **Gluscevic**, **V.** 2019. "Gravitational probes of ultra-light axions." Bulletin of the American Astronomical Society 51.
- Simon, J. and 11 colleagues including **Gluscevic**, **V.** 2019. "Dynamical Masses for a Complete Census of Local Dwarf Galaxies." Bulletin of the American Astronomical Society 51.
- Bechtol, K. and 178 colleagues including **Gluscevic**, **V.** 2019. "Dark Matter Science in the Era of LSST." Bulletin of the American Astronomical Society 51.
- Chluba, J. and 100 colleagues including Gluscevic, V. 2019. "Spectral Distortions of the CMB as a Probe of Inflation, Recombination, Structure Formation and Particle Physics." Bulletin of the American Astronomical Society 51.
- Sehgal, N. and 24 colleagues including **Gluscevic**, **V.** 2019. "Science from an Ultra-Deep, High-Resolution Millimeter-Wave Survey." Bulletin of the American Astronomical Society 51.
- Abazajian, K. and 224 colleagues including Gluscevic, V. 2019. "CMB-S4 Science Case, Reference Design, and Project Plan." arXiv:1907.04473
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- Drlica-Wagner, A. and 99 colleagues including **Gluscevic**, **V.** 2019. "Probing the Fundamental Nature of Dark Matter with the Large Synoptic Survey Telescope." arXiv:1902.01055.
- Abazajian, K. N. and 85 colleagues including Gluscevic, V. 2016. "CMB-S4 Science Book, First Edition." arXiv:1610.02743.