Vera Gluscevic

Curriculum Vitae (Oct 31, 2023)

University of Southern California
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Research Interests

Cosmological and astrophysical probes of new physics. Dark matter and dark energy. Direct detection. Cosmic microwave background theory and analysis. Near-field cosmology. 21-cm cosmology. Structure formation and cosmological simulations. Probabilistic inference in physics.

Appointments

2023 **California Institute of Technology, Physics, Mathematics and Astronomy**, *Pasadena, CA*
- Visiting Associate in Theoretical Astrophysics

2019–Present **University of Southern California, Department of Physics and Astronomy**, *Los Angeles, CA*
- Gabilan Assistant Professor

2018–2019 **University of Florida, Department of Physics**, *Gainesville, FL*
- Assistant Professor (leave of absence)

2018–2019 **Princeton University, Department of Physics**, *Princeton, NJ*
- Visiting Research Scholar

Summer 2017 **Carnegie Observatories**, *Pasadena, CA*
- Visiting Research Scholar

2013–2018 **Institute for Advanced Study**, *Princeton, NJ*
- 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.*
- 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

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 **Gabilan Assistant Professorship**, University of Southern California.

2016-2018 **Eric Schmidt Fellowship**, Institute for Advanced Study, Princeton.

2007 **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

- **NSF CAREER Award.** Award number: PHY-2239205. Award period: 08/2023-08/2028. **(single PI)**. Title: "Discovering the Microphysics of Dark Matter with Cosmology."
- **Cottrell Scholars Award.** Award period: 2023-2026. **(single PI)**. Title: "Discovering Dark Matter with Cosmology."
- **NSF–Particle Astrophysics and Cosmology–Theory.** Award number: PHY-2013951. Award period: 09/2020-08/2023. **(single PI)**. Title: "Probing Dark Matter Physics Throughout Cosmic History."
- **NASA Astrophysics Theory Program.** Award number: 21-ATP21-0135. Award period: 06/2022-07/2025. **(lead PI)**. Title: "Cosmological Signals of Light Dark Matter: New Predictions and Connections."

Publications in Peer-Review Journals (Lead/Key Contributor)

Below is a list of all 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.

- Rui, A.*, **Gluscevic, V.** "Reconstructing the early-universe expansion and thermal history." arXiv:2310.17195. Submitted for publication.
- He, A.*, Rui, A.*, Ivanov, M., **Gluscevic, V.** "Self-Interacting Neutrinos in Light of Large-Scale Structure Data." arXiv:2309.03956. Submitted for publication.
- 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.
  `https://doi.org/10.48550/arXiv.2301.08299`
- He, A.*, Ivanov, M., Rui, A.*, **Gluscevic, V.** "S8 Tension in the Context of Dark Matter-Baryon Scattering." arxiv:2301.08260. ApJ Letters, Volume 954, Issue 1, Pages L8, September 2023. *Editor's pick*. `https://doi.org/10.48550/arXiv.2301.08260`
  AAS Nova Highlight. `https://aasnova.org/2023/10/11/could-interacting-dark-matter-solve-a-pr`

- Nadler, E. O.*, Benson, A., Driskell, T.*, Du, X., **Gluscevic, V.**. "Growing the First Galaxies' Merger Trees." arxiv:2212.08584. Monthly Notices of the Royal Astronomical Society, Volume

521, Issue 3, May 2023, Pages 3201–3220.
https://doi.org/10.1093/mnras/stad666

- Driskell, T.*, Nadler, E. O.*, Mirocha, J.*, Benson, A., Boddy, K. K., Morton, T. D., Lashner, J.*, **Gluscevic, V.**. "Structure formation and the global 21-cm signal in the presence of Coulomb-like dark matter-baryon interactions." arXiv:2209.04499. Physical Review D 106, 103525, 2022.
https://doi.org/10.1103/PhysRevD.106.103525
- Li, Z.*, An, R.*, **Gluscevic, V.**, Boddy, K. K., and the ACT Collaboration. "The Atacama Cosmology Telescope: limits on dark matter-baryon interactions from DR4 power spectra." arXiv:2208.08985; Journal of Cosmology and Astroparticle Physics, JCAP02(2023)046.
https://doi.org/10.1088/1475-7516/2023/02/046
- Roy, A., van Engelen, A., **Gluscevic, V.**, Battaglia, N. "Probing the circumgalactic medium with CMB polarization statistical anisotropy." arXiv:2201.05076. ApJ, Volume 951, Issue 1, Pages 50.
https://doi.org/10.48550/arXiv.2201.05076
- Short, K., Bernal, J. L., Boddy, K. K., **Gluscevic, V.**, Verde, L. 2022. "Dark matter-baryon scattering effects on temperature perturbations and implications for cosmic dawn." arXiv:2203.16524. Submitted for publication.
https://doi.org/10.48550/arXiv.2203.16524
- Rui, A.*, **Gluscevic, V**., Erminia, C., Colin, H. J. 2022. "What does cosmology tell us about the mass of thermal-relic dark matter? Journal of Cosmology and Astroparticle Physics." arXiv:2202.0351. Journal of Cosmology and Astroparticle Physics, JCAP07(2022)002.
https://doi.org/10.1088/1475-7516/2022/07/002
- Nguyen, D. V.*, Sarnaaik, D.*, Boddy, K. K., Nadler, E. O.*, **Gluscevic, V.** 2021. "Observational constraints on dark matter scattering with electrons." Physical Review D 104, 103521, 2021.
https://doi.org/10.1103/PhysRevD.104.103521
- Nadler, E. O.* and 68 colleagues (DES Collaboration) including **Gluscevic, V.** as external key contributor 2021. "Constraints on Dark Matter Properties from Observations of Milky Way Satellite Galaxies." Physical Review Letters 126, 091101, 2021.
https://doi.org/10.1103/PhysRevLett.126.091101
- Maamari, K.*, **Gluscevic, V.**, Boddy, K. K., Nadler, E. O.*, Wechsler, R. H. "Bounds on Velocity-dependent Dark Matter-Proton Scattering from Milky Way Satellite Abundance." The Astrophysical Journal Letters 907 L46, 2021.
https://doi.org/10.3847/2041-8213/abd807
- Nadler, E. O.*, **Gluscevic, V.**, Boddy, K. K., Wechsler, R. H. 2019. "Constraints on Dark Matter Microphysics from the Milky Way Satellite Population." The Astrophysical Journal Letters 878 L32, 2019.
https://doi.org/10.3847/2041-8213/ab1eb2
- Ade, P. and 249 colleagues (Simons Observatory Collaboration) including **Gluscevic, V.** 2019. "The Simons Observatory: science goals and forecasts." Journal of Cosmology and Astroparticle Physics JCAP02(2019)056, 2019.
https://doi.org/10.1088/1475-7516/2019/02/056

- Li, Z.*, **Gluscevic, V.**, Boddy, K. K., Madhavacheril, M. S. 2018. "Disentangling dark physics with cosmic microwave background experiments." Physical Review D 98, 123524, 2018. https://doi.org/10.1103/PhysRevD.98.123524
- Boddy, K. K., **Gluscevic, V.**, Poulin, V., Kovetz, E. D., Kamionkowski, M., Barkana, R. 2018. "Critical assessment of CMB limits on dark matter-baryon scattering: New treatment of the relative bulk velocity." Physical Review D 98, 123506, 2018. https://doi.org/10.1103/PhysRevD.98.123506
- Kovetz, E. D., Poulin, V., **Gluscevic, V.**, Boddy, K. K., Barkana, R., Kamionkowski, M. 2018. "Tighter limits on dark matter explanations of the anomalous EDGES 21 cm signal." Physical Review D 98, 103529, 2018. https://doi.org/10.1103/PhysRevD.98.103529
- Boddy, K. K., **Gluscevic, V.** 2018. "First cosmological constraint on the effective theory of dark matter-proton interactions." Physical Review D 98, 083510, 2018. https://doi.org/10.1103/PhysRevD.98.083510
- **Gluscevic, V.**, Boddy, K. K. 2018. "Constraints on Scattering of keV-TeV Dark Matter with Protons in the Early Universe." Physical Review Letters 121, 081301, 2018. https://doi.org/10.1103/PhysRevLett.121.081301
- **Gluscevic, V.**, Venumadhav, T., Fang, X., Hirata, C., Oklopčić, A., Mishra, A. 2017. "New probe of magnetic fields in the pre-reionization epoch. II. Detectability." Physical Review D 95, 083011, 2017. https://doi.org/10.1103/PhysRevD.95.083011
- Venumadhav, T., Oklopčić, A., **Gluscevic, V.**, Mishra, A., Hirata, C. M. 2017. "New probe of magnetic fields in the prereionization epoch. I. Formalism." Physical Review D 95, 083010, 2017. https://doi.org/10.1103/PhysRevD.95.083010
- Witte, S. J.*, **Gluscevic, V.**, McDermott, S. D. 2017. "Prospects for distinguishing dark matter models using annual modulation." Journal of Cosmology and Astroparticle Physics JCAP02(2017)044, 2017. https://doi.org/10.1088/1475-7516/2017/02/044
- **Gluscevic, V.**, Gresham, M. I., McDermott, S. D., Peter, A. H. G., Zurek, K. M. 2015. "Identifying the theory of dark matter with direct detection." Journal of Cosmology and Astroparticle Physics JCAP12(2015)057, 2015. https://doi.org/10.1088/1475-7516/2015/12/057
- Peter, A. H. G., **Gluscevic, V.**, Green, A. M., Kavanagh, B. J., Lee, S. K. 2014. "WIMP physics with ensembles of direct-detection experiments." Physics of the Dark Universe Volumes 5–6, December 2014, Pages 45-74. https://doi.org/10.1016/j.dark.2014.10.006
- **Gluscevic, V.**, Peter, A. H. G. 2014. "Understanding WIMP-baryon interactions with direct detection: a roadmap." Journal of Cosmology and Astroparticle Physics JCAP09(2014)040, 2014. https://doi.org/10.1088/1475-7516/2014/09/040
- **Gluscevic, V.**, Kamionkowski, M., Hanson, D. 2013. "Patchy screening of the cosmic microwave background by inhomogeneous reionization." Physical Review D 87, 047303. https://doi.org/10.1103/PhysRevD.87.047303

- **Gluscevic, V.** 2013. "CMB as a Probe of New Physics and Old Times." Ph.D. Thesis. https://doi.org/10.7907/VZ0P-XD08
- **Gluscevic, V.**, Hanson, D., Kamionkowski, M., Hirata, C. M. 2012. "First CMB constraints on direction-dependent cosmological birefringence from WMAP-7." Physical Review D 86, 103529. https://doi.org/10.1103/PhysRevD.86.103529
- Caldwell, R. R., **Gluscevic, V.**, Kamionkowski, M. 2011. "Cross-correlation of cosmological birefringence with CMB temperature." Physical Review D 84, 043504. https://doi.org/10.1103/PhysRevD.84.043504
- **Gluscevic, V.**, Barkana, R. 2010. "Statistics of 21-cm fluctuations in cosmic reionization simulations: PDFs and difference PDFs." Monthly Notices of the Royal Astronomical Society Volume 408, Issue 4, November 2010, Pages 2373–2380. https://doi.org/10.1111/j.1365-2966.2010.17293.x
- **Gluscevic, V.**, Kamionkowski, M. 2010. "Testing parity-violating mechanisms with cosmic microwave background experiments." Physical Review D 81, 123529, 2010. https://doi.org/10.1103/PhysRevD.81.123529
- **Gluscevic, V.**, Kamionkowski, M., Cooray, A. 2009. "Derotation of the cosmic microwave background polarization: Full-sky formalism." Physical Review D 80, 023510. https://doi.org/10.1103/PhysRevD.80.023510

Large-Collaboration Publications (since 2019)

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

- 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. https://doi.org/10.48550/arXiv.2307.01258
- 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. https://doi.org/10.48550/arXiv.2306.17268
- Madhavacheril, M. and the ACT Collaboration, including **Gluscevic, V.** 2023. "The Atacama Cosmology Telescope: DR6 Gravitational Lensing Map and Cosmological Parameters." arXiv:2304.05203. Submitted for publication. https://doi.org/10.48550/arXiv.2304.05203
- Qu, F. J. and the ACT Collaboration, including **Gluscevic, V.** 2023. "The Atacama Cosmology Telescope: A Measurement of the DR6 CMB Lensing Power Spectrum and its Implications for Structure Growth." arXiv:2304.05202. Submitted for publication. https://doi.org/10.48550/arXiv.2304.05202
- Zegeye, D. and the CMB-S4 Collaboration, including **Gluscevic, V.** 2023. "CMB-S4: Forecasting Constraints on fNL Through μ-distortion Anisotropy." arXiv:2303.00916. Submitted for publication. https://doi.org/10.48550/arXiv.2303.00916

- Kreisch, C. and 23 colleagues et al., including **Gluscevic, V.** 2022. "The Atacama Cosmology Telescope: The Persistence of Neutrino Self-Interaction in Cosmological Measurements." arXiv:2207.03164. Submitted for publication.
  https://doi.org/10.48550/arXiv.2207.03164
- Hill, J. C. and 41 colleagues (ACT Collaboration) including **Gluscevic, V.** 2021. "The Atacama Cosmology Telescope: Constraints on Pre-Recombination Early Dark Energy." arXiv:2109.04451. Physical Review D 105, 123536, 2022.
  https://doi.org/10.1103/PhysRevD.105.123536
- Li, Y. and 32 colleagues (ACT Collaboration) including **Gluscevic, V.** 2021. "Constraining Cosmic Microwave Background Temperature Evolution With Sunyaev-Zel'Dovich Galaxy Clusters from the Atacama Cosmology Telescope." The Astrophysical Journal 922 136.
  https://doi.org/10.3847/1538-4357/ac26b6
- Choi, S. K. and 138 colleagues (ACT Collab.) including **Gluscevic, V.** 2020. "The Atacama Cosmology Telescope: a measurement of the Cosmic Microwave Background power spectra at 98 and 150 GHz." Journal of Cosmology and Astroparticle Physics JCAP12(2020)045, 2020.
  https://doi.org/10.1088/1475-7516/2020/12/045
- Aiola, S. and 140 colleagues (ACT Collaboration) including **Gluscevic, V.** 2020. "The Atacama Cosmology Telescope: DR4 maps and cosmological parameters." Journal of Cosmology and Astroparticle Physics JCAP12(2020)047, 2020.
  https://doi.org/10.1088/1475-7516/2020/12/047
- Namikawa, T. and 53 colleagues (ACT Collaboration) including **Gluscevic, V.** 2020. "Atacama Cosmology Telescope: Constraints on cosmic birefringence." Physical Review D 101, 083527.
  https://doi.org/10.1103/PhysRevD.101.083527
- CMB-S4 Collaboration, including **Gluscevic, V.** 2020. "CMB-S4: Forecasting Constraints on Primordial Gravitational Waves." ApJ, Volume 926, Issue 1, Pages 54, February 2022.
  https://doi.org/10.3847/1538-4357/ac1596

Selected White Papers

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

- 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.
- Abazajian, K and 355 colleagues et al., including **Gluscevic, V.** 2022. "Snowmass 2021 CMB-S4 White Paper." arXiv:2203.08024
- Mao, Y. Y. and 32 colleagues including **Gluscevic, V.** 2022. "Snowmass2021: Vera C. Rubin Observatory as a Flagship Dark Matter Experiment." arXiv:2203.07252
- Dvorkin, C. and 12 colleagues et al., including **Gluscevic, V.** 2022. "Dark Matter Physics from the CMB-S4 Experiment." arXiv:2203.07064
- 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
- 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
- Hanany, S. and 81 colleagues including **Gluscevic, V.** 2019. "PICO: Probe of Inflation and Cosmic Origins." arXiv:1902.10541
- 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.

Teaching

Fall 2023	**Physics Discovery Series - with Practicum (PHYS 190)**, *Undergraduate course*, Department of Physics and Astronomy, USC
Summer 2023	**Michigan Cosmology Summer School 2023**, Ann Arbor, Michigan, Invited Lecturer.
Fall 2022	**Advanced Cosmology (ASTR 540)**, *Graduate course*, Department of Physics and Astronomy, USC
Spring 2021, Fall 2021, Spring 2022	**The Universe (ASTR 100)**, *General Education Course*, Department of Physics and Astronomy, USC
Spring 2020	**Cosmology (ASTR 424)**, *Upper-division course for physics and astronomy majors*, Department of Physics and Astronomy, USC

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

2008-2011 **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**
- Dr. Rui An
- Dr. Ethan Nadler

2019–Present **Ph.D. thesis adviser**
- George (Trey) Driskell (passed PhD candidacy 2023)
- Aryan Rahimieh
- Wendy Crumrine
- Adam He
- Karime Maamari

2021–Present **National Society of Black Physicists (NSBP) and Simons Foundation Summer Program Mentor**
- Logan White (North Carolina State University, summer 2023)
- Israel Biniam (Montgomery College, summer 2022; GEM fellowship 2023)
- Nyal McCrea (Central Washington University; summer 2021)

2019–Present **USC Undergraduate student advisor**
- Lucy Retterer (USC, class of 2025)
- James Wen (USC, class of 2024)
- 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)
- David Nguyen (USC, class of 2021; now Yale Physics PhD program)
- Dimple Sarnaaik (USC, class of 2021; now USC Physics and Astronomy PhD program)
- Connor Powers (USC, class of 2021; now University of Maryland Physics PhD program)
- Brenda Zhou (USC, class of 2021)
- 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 Astronomoy PhD program)
- Christian Glover (USC, class of 2020)

2022–Present **High school student mentor**
- Mansour Doumbia (Bronx High School of Science, summer 2022)
- 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*
- 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

2022-Present **USC Cosmology Fund**
- Raised $50,000 from the Annenberg-Weingarten Foundation and `explore.org` for the first funded USC Cosmology Colloquium and Visitor series.

2023–2024 **Dornsife Women in Science and Engineering (WiSE) PhD Advisory Board**
- Faculty Mentor.

2021–Present **Climate Committee**, *Physics and Astronomy*
- Founder and inaugural chair.

2021–2023 **Faculty Liaison for Graduate Students**, *Physics and Astronomy*

2019–2020 **USC Diversity, Equity, and Inclusion Caucus**, *Physics and Astronomy Faculty Representative*

2019–2023 **Graduate Curriculum committee**, *Physics and Astronomy*

2021, 2023 **Faculty Search committees**, *Physics and Astronomy*

2020, 2021, 2022 **Graduate Student Admissions**, *Physics and Astronomy*
- Review of applications, student interviews
- CosmoLab student visit organization

2021-Present **Student Thesis Committees**
- Physics and Astronomy: Jack Lashner (Thesis Committee 2022), Armen Tokadjian (Candidacy Committee 2021), Anastasia Haynie (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**, *USC Physics and Astronomy*

2019–2020 **Bylaws committee**, *USC Physics and Astronomy*

2019, 2020 **Physics Student Welcome Forum, panelist**, *USC Physics and Astronomy*

External Service

2022, 2024 **Kavli Institute for Theoretical Physics (KITP) Long-Term Program Lead (Summer 2024)**

- Topic: Dark Matter Theory, Simulation, and Analysis in the Era of Large Surveys.
- Lead of the proposal and head organizer of an accepted 2-month program.
- `https://www.kitp.ucsb.edu/activities/darkmatter24`

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, 2022 **NSF proposal review**, Astronomy and Astrophysics Program and Astro-Particle 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.
- 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

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 background: 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)

Jun 2023 Self Interacting Dark Matter: Models, Simulations and Signals, Pollica, Italy; workshop and talk.

May 2023 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**.