Ethan Nadler | Curriculum Vitae

University of California, San Diego

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Research

Galaxy Formation
– Understanding how the faintest galaxies formed and evolved;
– Modeling the connection between dwarf galaxies and dark matter halos.

Dark Matter
– Searching for signals of dark matter microphysics in small-scale structure data;
– Simulating structure formation beyond CDM using high-resolution simulations.

Near-field Cosmology
– Reconstructing primordial density fluctuations from local dwarf galaxy surveys;
– Combining dwarf galaxies and strong lensing to search for galaxy–free dark halos.

Positions

University of California, San Diego — *2025–*
Assistant Professor, Department of Astronomy & Astrophysics

Carnegie Observatories & University of Southern California — *2021–24*
Joint Postdoctoral Research Fellow, CTAC & USC Department of Physics and Astronomy

Education

Stanford University — *2021*
Ph.D., Physics (Advisor: Risa H. Wechsler)
Thesis: Faint Galaxies and Small Halos: Probes of Galaxy Formation and Dark Matter

University of California, Santa Barbara — *2016*
B.S., Physics (Advisor: S. Peng Oh)
Thesis: Universality in the Structure and Abundance of Dark Matter Halos

Grants

NSF Astronomy & Astrophysics Research Grants (PI; $419,979) — *2024–*
Collaborative Research: Reconstructing Primordial Density Fluctuations with Near-field Cosmology

UC San Diego School of Physical Sciences DEI Grant (PI; $2,500) — *2024–*
The Preuss School + UCSD Astronomy & Astrophysics: Dark Matter & Scientific Programming

Carnegie DEI Grant (PI; $1,500) — *2022–24*
CreateNow + Carnegie: Dark Matter & Data Visualization

Scientific Collaborations

Satellites Around Galactic Analogs Survey: Member — *2019–*
DECam Local Volume Exploration Survey: Member — *2019–*
Rubin LSST Dark Energy Science Collaboration: Member, Dark Matter Working Group — *2018–*
Dark Energy Survey: Member, Milky Way Working Group — *2018–*

Fellowships & Awards

Faculty Fellow: San Diego Supercomputing Center	*2025–*
ACCESS Allocation: Optimizing Next-generation Cosmological Zoom-in Simulations	*2025*
XSEDE Allocation: Cosmological Simulations of Milky Way Analogs with Galactic Disks	*2022–23*
XSEDE Allocation: Simulations of Milky Way Halos with Large Magellanic Cloud Analogs	*2020–21*
NSF Graduate Research Fellow: National Science Foundation	*2018–21*
Faculty Committee Commendation of Excellence: UCSB College of Creative Studies	*2016*
Outstanding Senior Award: UCSB Department of Physics	*2016*
Worster Summer Research Fellow: UCSB Department of Physics	*2015*

Mentoring

Undergraduate Thesis Advisor (current in bold)   *2025–*
- **Sophia Um**, UCSD: Environmental dependence of dwarf galaxy star formation

Graduate Co-advisor (current in bold)   *2021–*
- Niusha Ahvazi, UCR → UVA: Semi-analytic modeling of dwarf galaxy formation and evolution
  (see N. Ahvazi, A. Benson, L. Sales, E. O. Nadler *et al.* 2024);
- **Wendy Crumrine**, USC: Constraining dark matter–radiation interactions with small-scale structure
  (see W. Crumrine, E. O. Nadler *et al.* 2024);
- Elise Darragh-Ford, Stanford: Searching for dwarf galaxies and stellar streams in *Gaia* data
  (see E. Darragh-Ford, E. O. Nadler *et al.* 2021);
- **Trey Driskell**, USC: Semi-analytic modeling of structure and galaxy formation
  (see T. Driskell, E. O. Nadler *et al.* 2022, 2024);
- Noah Glennon, UNH: Soliton orbital evolution in self-interacting axion dark matter
  (see N. Glennon, E. O. Nadler *et al.* 2022; N. Glennon, N. Musoke, E. O. Nadler *et al.* 2024);
- Sidney Mau, Stanford: Constraining the dark matter particle lifetime with dwarf galaxies
  (see S. Mau, E. O. Nadler *et al.* 2022);
- **Siddhesh Raut**, USC: Self-interacting dark matter halo gravothermal evolution modeling;
- Yunchong Wang, Stanford: Empirically modeling dwarf galaxy star formation histories
  (see Y. Wang, E. O. Nadler *et al.* 2021, 2024a; Y. Wang, P. Mansfield, E. O. Nadler *et al.* 2024b);

Undergraduate, Post-baccalaureate, & High-school Co-advisor   *2018–*
- Deveshi Buch, Stanford '24: Cosmological zoom-in simulations of Milky Way-like systems
  (see D. Buch, E O. Nadler *et al.* 2024);
- Shuxing Fang, USC '22: Large Magellanic Cloud infall in self-interacting dark matter;
- Abigail Lee, UPenn '19 → UChicago: Subhalo disruption in galaxy clusters.
- Nyal McCrea (Simons–NSBP Scholar), CWU '22 → Synrad: Visualizing subhalo populations;
- Ellen Min, Caltech '24: Code development and Python implementation for Galacticus;
- Nicel Mohamed-Hinds, Stanford '19 → UW: Emulating hydrodynamic zoom-in simulations;
- Ezra Msolla (Simons–NSBP Scholar), UToronto '25: Neutrino self-interaction impact on cosmic structure
- Veronica Pratt, Stanford '23 → Tufts: Statistics of Large Magellanic Cloud analogs in the SAGA Survey;
- Juan Quiroz, Caltech '24: Modeling subhalo evolution in decaying dark matter models;
- Derek Rodriguez, USC Hybrid High '23 → UCLA: Symphony simulation analysis;
- Resherle Verna, USC '20 → UT Austin: Subhalo populations in SIDM + hydrodynamic simulations;
- Logan White (Simons–NSBP Scholar), NCSU '25: Halo mass function evolution beyond CDM;

Teaching

Professor (UCSD)   *2025–*
- ASTR 2: *Galaxies and the Universe* (Spring '25).

Guest Lecturer (USC)   *2022*
- *Advanced Cosmology*: Lecture on *Structure Formation & Galaxies*.

Textbook Co-Author (UC Davis) *2022*
- *A Cosmology Workbook: 31: Structure Formation, 32: Galaxy Formation.*

Teaching Assistant (Stanford) *2017–21*
- *Structure Formation & Galaxy Formation, Modern Astrophysics, Cosmology & Extragalctic Astrophysics, Origin & Development of the Cosmos, Electricity & Magnetism.*

Course Assistant (UCSB) *2015–16*
- *Relativistic Quantum Mechanics, Kinetic Theory & Relativity, Mechanics & Waves, Newtonian Mechanics.*

Tutor (UCSB Campus Learning Assistance Services) *2015-16*
- Held biweekly supplementary lectures for *Basic Physics, Linear Algebra, Differential Equations.*

Service

Conference Coordinator (KITP, Cosmic Signals of Dark Matter Physics: New Synergies) *2024*
Proposal Review Panel Member (*NASA ADAP, NSF AAG*) *2022–*
USC Physics Climate Committee (Postdoctoral & Staff Representative) *2021–*
Journal Referee (*ApJ, ApJL, Astropart. Phys., JCAP, MNRAS, Nature, PRD, PRL, Lang. & Cognit.*) *2019–*

Outreach

UCSD Preuss High School: Dark Matter & Scientific Programming (Course Instructor) *2025*
Carnegie Observatories Lectures at the Huntington (Speaker) *2023*
USC Hybrid High School: Dark Matter & Data Visualization (Course Instructor) *2022*
Carnegie Observatories Lectures at Pasadena City College (Speaker) *2022*
Carnegie Observatories Lunch with an Astronomer (Speaker) *2022*
Cosmic Cocktail Hour with Carnegie Observatories (Speaker) *2022*
UCSB Physics NSF REU (Speaker) *2021–24*
San Mateo County Astronomical Society (Speaker) *2021*
Astronomy on Tap San Francisco (Speaker and Volunteer) *2018–20*
Stanford Future Advancers of Science and Technology (Physics Mentor) *2017–19*

Media

UC Riverside News, *New dark matter theory explains two puzzles in astrophysics* *2023*
Quanta Magazine, *In a Monster Star's Light, a Hint of Darkness* *2023*
KIPAC Research Highlight, *Between the worlds of the visible and invisible lies: Dark Matter* *2021*
Fermilab Press Release, *DES census of the smallest galaxies hones the search for dark matter* *2020*
SLAC Press Release, *Milky Way satellites reveal link between dark matter and galaxy formation* *2020*
AAS Nova Research Highlight, *Constraining collisions of dark matter* *2019*
SLAC Press Release, *Satellite galaxies provide new clues about dark matter* *2019*
KIPAC Research Highlight, *Dark matter subhalo disruption: insights from machine learning* *2018*

Invited Presentations

Revealing Dark Matter and Galaxy Formation with Small-Scale Structure *2024–*
UC Santa Cruz, Astronomy & Astrophysics Colloquium
UC Merced, Physics Colloquium
Carnegie Observatories, Colloquium
Rice, Astronomy & Astrophysics Seminar
UC San Diego, Astrophysics Colloquium
Caltech, TAPIR Seminar

COZMIC: Cosmological Zoom-in Simulations with Initial Conditions Beyond CDM 2024–
UCLA, Dark Matter 2025
Princeton, Dark Cosmos Seminar
Carnegie Observatories, GalFRESCA [slides]
PACIFIC Conference

Review: What can Dwarf Galaxies Reveal about the Nature of Dark Matter? 2024–
Dynamical Tracers of the Nature of Dark Matter [slides]
Durham, Small Galaxies, Cosmic Questions - II [slides]

Dark Matter Physics in the Sky 2024
KITP Blackboard Talk [video]

Forecasts for Galaxy Formation and Dark Matter Constraints from Dwarf Galaxy Surveys 2024
LSST DESC, Seminar
LBNL, Fundamental Physics from Future Spectroscopic Surveys [slides]

SIDM (Sub)halos in Milky Way and Strong Lens Analogs 2023
Pollica Physics Centre, Self-Interacting Dark Matter Models, Simulations and Signals [slides]

Cosmological Simulations with Novel Dark Matter Physics 2023
UC Riverside, GalFRESCA
UCLA, Dark Matter 2023 [slides]
KICP, Astronomy & Astrophysics Seminar

The Faint End of the Galaxy–Halo Connection 2023
KITP, Building a Physical Understanding of Galaxy Evolution [video]

Dark Matter Constraints from Small-Scale Structure 2022
CERN, New Physics from Galaxy Clustering [video, slides]

Symphony: Cosmological Zoom-in Simulations over Four Decades of Host Halo Mass 2022
Caltech, GalFRESCA [slides]

Dark Matter Physics + Rubin LSST 2022
LSST DESC, CosmoPalooza

Towards Precision Near-Field Cosmology 2021
KIPMU, Astro Lunch Seminar
UC Riverside, Astronomy Seminar
Fermilab, Cosmic Physics Center Seminar [video]

Dark Matter Constraints from a Unified Analysis of Strong Lenses and Satellite Galaxies 2021
LSST DESC, Dark Matter Working Group
Virginia Tech Center for Neutrino Physics, Journal Club

The Faintest Galaxies and their Dark Matter Halos 2020–21
Harvard-Smithsonian Center for Astrophysics, GCSP Seminar [video]
International Centre for Theoretical Sciences, Less Travelled Path of Dark Matter [video, slides]
KITP, The Galaxy–Halo Connection Across Cosmic Time: Recent Updates [video]
LIneA, Webinar [video, slides]
KIPAC, Astrophysics Colloquium [video]
Fermilab, New Perspectives [slides]
BSM Pandemic Seminar [video, slides]

Milky Way Satellites: Probes of Dark Matter Microphysics 2019
University of Chicago, Cosmic Controversies [slides]

KICP, LSST Dark Matter Workshop [slides]
Institute for Advanced Study, Astro Coffee
Johns Hopkins, High Energy Physics/Cosmology Seminar
UC Berkeley, LSST DESC Winter Collaboration Meeting

Modeling Subhalos and Satellites in Milky Way-like Systems   *2018*
KICP, Near-Field Cosmology with DES DR1 [slides]
KITP, The Small-Scale Structure of Cold(?) Dark Matter [video, slides]
UC Berkeley Center for Cosmological Physics, Cosmology Seminar [slides]

Predicting Realistic Subhalo Populations   *2017*
KITP, The Galaxy–Halo Connection Across Cosmic Time

First-authored Publications

E. O. Nadler. *The Impact of Molecular Hydrogen Cooling on the Galaxy Formation Threshold*. 2503.04885 (ApJL in press).

E. O. Nadler & A. Benson. *A semi-analytic model for decaying dark matter halos*. 2501.12636 (PRD submitted).

E. O. Nadler, R. An, D. Yang, H.-B. Yu, A. Benson, and V. Gluscevic. *COZMIC. III. Cosmological Zoom-in Simulations of SIDM with Suppressed Initial Conditions*. 2412.13065 (ApJ submitted).

E. O. Nadler, R. An, V. Gluscevic, A. Benson, and X. Du. *COZMIC. I. Cosmological Zoom-in Simulations with Initial Conditions Beyond CDM*. 2410.03635 (ApJ submitted).

E. O. Nadler, V. Gluscevic, T. Driskell, R. H. Wechsler, L. A. Moustakas, *et al. Forecasts for Galaxy Formation and Dark Matter Constraints from Dwarf Galaxy Surveys*. 2024, ApJ, 967, 61.

E. O. Nadler, D. Yang, and H.-B. Yu. *A Self-interacting Dark Matter Solution to the Extreme Diversity of Low-mass Halo Properties*. 2023, ApJL, 958, L39.

E. O. Nadler, P. Mansfield, Y. Wang, X. Du *et al. Symphony: Cosmological Zoom-in Simulation Suites over Four Decades of Host Halo Mass*. 2023, ApJ, 945, 159.

E. O. Nadler, A. Benson, T. Driskell, X. Du, and V. Gluscevic. *Growing the First Galaxies' Merger Trees*. 2023, MNRAS, 521, 3201.

E. O. Nadler, A. Banerjee, S. Adhikari, Y.-Y. Mao, and R. H. Wechsler. *The Effects of Dark Matter and Baryonic Physics on the Milky Way Subhalo Population in the Presence of the Large Magellanic Cloud*. 2021, ApJL, 920, L11.

E. O. Nadler, S. Birrer, D. Gilman, R. H. Wechsler, X. Du, A. Benson, A. Nierenberg, and T. Treu. *Dark Matter Constraints from a Unified Analysis of Strong Gravitational Lenses and Milky Way Satellite Galaxies*. 2021, ApJ, 917, 7.

E. O. Nadler & A. Drlica-Wagner *et al.* (DES Collaboration). *Constraints on Dark Matter Properties from Observations of Milky Way Satellite Galaxies*. 2021, PRL, 126, 091101.

E. O. Nadler, A. Banerjee, S. Adhikari, Y.-Y. Mao, and R. H. Wechsler. *Signatures of Velocity-dependent Dark Matter Self-interactions in Milky Way-mass Halos*. 2020, ApJ, 896, 112.

E. O. Nadler & R. H. Wechsler *et al.* (DES Collaboration). *Milky Way Satellite Census. II. Galaxy-Halo Connection Constraints Including the Impact of the Large Magellanic Cloud*. 2020, ApJ, 893, 48.

E. O. Nadler, V. Gluscevic, K. K. Boddy, and R. H. Wechsler. *Constraints on Dark Matter Microphysics from the Milky Way Satellite Population*. 2019, ApJL, 878, L32.

E. O. Nadler, Y.-Y. Mao, G. M. Green, and R. H. Wechsler. *Modeling the Connection between Subhalos and Satellites in Milky Way–like Systems*. 2019, ApJ, 873, 34.

E. O. Nadler, Y.-Y. Mao, R. H. Wechsler, S. Garrison-Kimmel, and A. Wetzel. *Modeling the Impact of Baryons on Subhalo Populations with Machine Learning*. 2018, ApJ, 859, 129.

E. O. Nadler, A. Perko, and L. Senatore. *On the bispectra of very massive tracers in the Effective Field Theory of Large-Scale Structure*. 2018, JCAP, 1, 058.

E. O. Nadler, S. P. Oh, and S. Ji. *On the apparent power law in CDM halo pseudo-phase space density profiles*. 2017, MNRAS, 470, 500.

Co-authored Publications

R. An, **E. O. Nadler**, A. Benson, and V. Gluscevic. *COZMIC. II. Cosmological Zoom-in Simulations with Fractional non-CDM Initial Conditions*. 2411.03431 (ApJ submitted).
○ Major contributions: Developed fractional simulation pipeline and interpreted constraints.

T. Driskell, **E. O. Nadler**, A. Benson, and V. Gluscevic. *Population synthesis and astrophysical inference for high-z JWST galaxies*. 2410.11680 (MNRAS submitted).
○ Major contributions: Conceptualized likelihood framework and interpreted astrophysical constraints.

Y. Wang, P. Mansfield, **E. O. Nadler**, E. Darragh-Ford, and R. H. Wechsler. *EDEN: Exploring Disks Embedded in N-body simulations of Milky-Way-mass halos from Symphony*. 2408.01487 (ApJ submitted).
○ Major contributions: Developed disk potential algorithm and growth model; interpreted disruption results.

S. Ando, S. Horigome, **E. O. Nadler**, D. Yang, and H.-B. Yu. *SASHIMI-SIDM: semi-analytical subhalo modelling for self-interacting dark matter at sub-galactic scales*. 2025, JCAP, 2, 053.
○ Major contributions: Analytic prediction for core-collapse fraction and interpretation of SIDM models.

W. Crumrine, **E. O. Nadler**, R. An, and V. Gluscevic. *Dark matter coupled to radiation: Limits from the Milky Way satellites*. 2025, PRD, 111, 023530.
○ Major contributions: Interpreted improvement and scaling of dark matter–radiation scattering constraints.

D. Yang, **E. O. Nadler**, and H.-B. Yu. *Testing the parametric model for self-interacting dark matter using matched halos in cosmological simulations*. 2025, Physics of the Dark Universe, 47, 101807.
○ Major contributions: Ran cosmological SIDM simulations and interpreted performance of parametric model.

X. Zhang, H.-B. Yu, D. Yang, and **E. O. Nadler**. *The GD-1 Stellar Stream Perturber as a Core-collapsed Self-interacting Dark Matter Halo*. 2025, ApJL, 978, L23.
○ Major contributions: Developed subhalo resimulation method and interpreted GD-1 results.

Y. Wang, **E. O. Nadler** *et al.* (SAGA Collaboration). *The SAGA Survey. V. Modeling Satellite Systems around Milky Way–mass Galaxies with Updated* `UNIVERSEMACHINE`. 2024, ApJ, 976, 119.
○ Major contributions: Interpreted galaxy–halo connection constraints; developed modeling pipeline.

M. Geha *et al.* (SAGA Collaboration, incl. **E. O. Nadler**). *The SAGA Survey. IV. The Star Formation Properties of 101 Satellite Systems around Milky Way–mass Galaxies*. 2024, ApJ, 976, 118.

Y.-Y. Mao *et al.* (SAGA Collaboration, incl. **E. O. Nadler**). *The SAGA Survey. III. A Census of 101 Satellite Systems around Milky Way–mass Galaxies*. 2024, ApJ, 976, 117.

E. Kado-Fong *et al.* (SAGA Collaboration, incl. **E. O. Nadler**). *SAGAbg II: The Low-mass Star-forming Sequence Evolves Significantly between* $0.05 < z < 0.21$. 2024, ApJ, 976, 83.

D. Buch, **E. O. Nadler**, R. H. Wechsler, and Y.-Y. Mao. *Milky Way-est: Cosmological Zoom-in Simulations with Large Magellanic Cloud and Gaia–Sausage–Enceladus Analogs*. 2024, ApJ, 971, 79.
○ Major contributions: Conceptualization; co-developed zoom-in simulation pipeline and analysis.

P. Mansfield, E. Darragh-Ford, Y. Wang, **E. O. Nadler**, B. Diemer, and R. H. Wechsler. `SYMFIND`: *Addressing the Fragility of Subhalo Finders and Revealing the Durability of Subhalos*. 2024, ApJ, 970, 178.

X. Du *et al.* (incl. **E. O. Nadler**). *Tidal evolution of cored and cuspy dark matter halos*. 2024, PRD, 110, 023019.

E. Kado-Fong *et al.* (SAGA Collaboration, incl. **E. O. Nadler**). *SAGAbg. I. A Near-unity Mass-loading Factor in Low-mass Galaxies via Their Low-redshift Evolution in Stellar Mass, Oxygen Abundance, and Star Formation Rate*. 2024, ApJ, 966, 129.

N. Ahvazi, A. Benson, L. V. Sales, **E. O. Nadler** *et al.* *A comprehensive model for the formation and evolution of the faintest Milky Way dwarf satellites*. 2024, MNRAS, 529, 3387.
○ Major contributions: Interpreted galaxy–halo connection and Milky Way satellite predictions.

N. Glennon, N. Musoke, **E. O. Nadler**, C. Prescod-Weinstein, and R. H. Wechsler. *Dynamical friction in self-interacting ultralight dark matter*. 2024, PRD, 109, 063501.

D. Yang, **E. O. Nadler**, H.-B. Yu, and Y.-M. Zhong. *A parametric model for self-Interacting dark matter halos*. 2024, JCAP, 2, 032.
○ Major contributions: Ran cosmological SIDM simulations and interpreted comparisons to parametric model.

M. McNanna, K. Bechtol, S. Mau, **E. O. Nadler** *et al.* (DES Collaboration). *A Search for Faint Resolved Galaxies Beyond the Milky Way in DES Year 6: A New Faint, Diffuse Dwarf Satellite of NGC 55*. 2024, ApJ, 961, 126
○ Major contributions: Developed dwarf galaxy population predictions and interpreted NGC 55 satellite.

P. Hopkins, **E. O. Nadler**, M. Grudić, X. Shen *et al.* *Novel conservative methods for adaptive force softening in collisionless and multispecies N-body simulations*. 2023, MNRAS, 525, 5951.
○ Major contributions: Conceptualized softening algorithms and interpreted small-scale structure results.

E. Darragh-Ford *et al.* (DESI Collaboration, incl. **E. O. Nadler**). *Target Selection and Sample Characterization for the DESI LOW-Z Secondary Target Program*. 2023, ApJ, 954, 149.

R. An, V. Gluscevic, **E. O. Nadler**, and Y. Zhang. *Can Neutrino Self-interactions Save Sterile Neutrino Dark Matter?* 2023, ApJL, 954, L18.
○ Major contributions: Developed framework for sterile neutrino constraints.

A. Banerjee, S. Das, A. Maharana, **E. O. Nadler**, and R. K. Sharma. *Nonthermal warm dark matter limits from small-scale structure*. 2023, PRD, 108, 043518.
○ Major contributions: Derived small-scale structure constraints and interpreted results.

W. Cerny *et al.* (DELVE Collaboration, incl. **E. O. Nadler**). *Six More Ultra-faint Milky Way Companions Discovered in the DECam Local Volume Exploration Survey*. 2023, ApJ, 953, 1.

D. Yang, **E. O. Nadler**, and H.-B. Yu. *Strong Dark Matter Self-interactions Diversify Halo Populations within and surrounding the Milky Way*. 2023, ApJ, 949, 67.
○ Major contributions: Performed cosmological SIDM simulations and interpreted dwarf galaxy predictions.

S. Yang, X. Du, Z. C Zeng, A. Benson, F. Jiang, **E. O. Nadler** *et al.* *Gravothermal Solutions of SIDM Halos: Mapping from Constant to Velocity-dependent Cross Section*. 2023, ApJ, 946, 47.

S. Wagner-Carena, J. Aalbers, S. Birrer, **E. O. Nadler** *et al.* *From Images to Dark Matter: End-to-end Inference of Substructure From Hundreds of Strong Gravitational Lenses*. 2023, ApJ, 942, 75.

T. Driskell, **E. O. Nadler**, J. Mirocha, A. Benson, K. K. Boddy *et al.* *Structure formation and the global 21-cm signal in the presence of Coulomb-like dark matter-baryon interactions*. 2022, PRD, 106, 103525.
○ Major contributions: Interpreted structure formation predictions for interacting dark matter models.

N. Glennon, **E. O. Nadler**, N. Musoke, A. Banerjee, C. Prescod-Weinstein, and R. H. Wechsler. *Tidal disruption of solitons in self-interacting ultralight axion dark matter*. 2022, PRD, 105, 123540.
○ Major contributions: Conceptualized and interpreted soliton tidal disruption simulations.

S. Mau, **E. O. Nadler**, R. H. Wechsler, A. Drlica-Wagner, K. Bechtol *et al.* (DES Collaboration). *Milky Way Satellite Census. IV. Constraints on Decaying Dark Matter from Observations of Milky Way Satellite Galaxies*. 2022, ApJ, 932, 128.
○ Major contributions: Performed cosmological decaying dark matter simulations and derived constraints.

J. Bhattacharyya, S. Adhikari, A. Banerjee, S. More, A. Kumar, **E. O. Nadler** *et al*. *The Signatures of Self-Interacting Dark Matter and Subhalo Disruption on Cluster Substructure*. 2022, ApJ, 932, 30.

J. F. Wu, J. E. G. Peek, E. J. Tollerud, Y.-Y. Mao, **E. O. Nadler** *et al*. *Extending the SAGA Survey (xSAGA). I. Satellite Radial Profiles as a Function of Host Galaxy Properties*. 2022, ApJ, 927, 121.

D. Nguyen, D. Sarnaaik, K. K. Boddy, **E. O. Nadler**, and V. Gluscevic. *Observational constraints on dark matter scattering with electrons*. 2021, PRD, 104, 103521.

A. Drlica-Wagner *et al*. (DELVE Collaboration, incl. **E. O. Nadler**). *The DECam Local Volume Exploration Survey: Overview and First Data Release*. 2021, ApJS, 256, 2.

Y. Wang, **E. O. Nadler**, Y.-Y. Mao, S. Adhikari, R. H. Wechsler *et al*. *UniverseMachine: Predicting Galaxy Star Formation over Seven Decades of Halo Mass with Zoom-in Simulations*. 2021, ApJ, 915, 116.
  o Major contributions: Interpreted dwarf galaxy star formation history predictions; analyzed simulations.

E. Darragh-Ford, **E. O. Nadler**, S. McLaughlin, and R. H. Wechsler. *Searching for Dwarfs in Gaia DR2 Phase-space Data using Wavelet Transforms*. 2021, ApJ, 915, 48.
  o Major contributions: Piloted and developed search algorithm; predicted number of detected dwarfs.

S. Das & **E. O. Nadler**. *Constraints on the epoch of dark matter formation from Milky Way satellites*. 2021, PRD, 103, 043517.
  o Major contributions: Derived and interpreted constraints on dark matter formation redshift.

K. Maamari, V. Gluscevic, K. K. Boddy, **E. O. Nadler**, and R. H. Wechsler. *Bounds on Velocity-dependent Dark Matter–Proton Scattering from Milky Way Satellite Abundance*. 2021, ApJL, 907, L46.
  o Major contributions: Developed numerical techniques to constrain interacting dark matter models.

Y.-Y. Mao, M. Geha, R. H. Wechsler, B. Weiner, E. J. Tollerud, **E. O. Nadler** *et al*. *The Saga Survey. II. Building a Statistical Sample of Satellite Systems around Milky Way–like Galaxies*. 2021, ApJ, 907, 85.
  o Major contributions: Provided theoretical predictions for SAGA satellite populations and interpreted results.

A. Drlica-Wagner, K. Bechtol, S. Mau, M. McNanna, **E. O. Nadler** *et al*. (DES Collaboration). *Milky Way Satellite Census. I. The Observational Selection Function for Milky Way Satellites in DES Y3 and Pan-STARRS DR1*. 2020, ApJ, 893, 47.
  o Major contributions: Developed machine-learning model of satellite detection sensitivity; analyzed simulations.

S. Mau *et al*. (DELVE Collaboration, incl. **E. O. Nadler**). *Two Ultra-Faint Milky Way Stellar Systems Discovered in Early Data from the DECam Local Volume Exploration Survey*. 2020, ApJ, 890, 136.

C. E. Martínez-Vázquez *et al*. (DES Collaboration, incl. **E. O. Nadler**). *Search for RR Lyrae stars in* DES *ultrafaint systems: Grus I, Kim 2, Phoenix II, and Grus II*. 2019, MNRAS, 490, 2183.

K. M. Stringer *et al*. (DES Collaboration, incl. **E. O. Nadler**). *Identification of RR Lyrae Stars in Multiband, Sparsely Sampled Data from the Dark Energy Survey Using Template Fitting and Random Forest Classification*. 2019, AJ, 158, 16.

White Papers

J. Han *et al*. *NANCY: Next-generation All-sky Near-infrared Community surveY*. 2023, 2306.11784.

A. Drlica-Wagner *et al*. *Report of the Topical Group on Cosmic Probes of Dark Matter for Snowmass 2021*. 2022, 2209.08215

A. Banerjee *et al*. *Snowmass2021 Cosmic Frontier White Paper: Cosmological Simulations for Dark Matter Physics*. 2022, 2203.07049
  o Major contributions: Developed simulation algorithm section and flowchart for tests of dark matter physics.

K. Bechtol *et al*. *Snowmass2021 Cosmic Frontier White Paper: Dark Matter Physics from Halo Measurements*. 2022, 2203.07354.
  o Major contributions: Developed ultra-faint dwarf galaxy section and power spectrum visualization.

Y.-Y. Mao *et al*. *Snowmass2021: Vera C. Rubin Observatory as a Flagship Dark Matter Experiment*. 2022, 2203.07252.

K. Boddy *et al*. *Astrophysical and Cosmological Probes of Dark Matter*. 2022, 2203.06380.

S. Gezari *et al*. *R2-D2: Roman and Rubin – From Data to Discovery*. 2022, 2202.12311.

V. Gluscevic *et al*. *Cosmological Probes of Dark Matter Interactions: The Next Decade*. 2019, 1903.05140.

J. Simon *et al*. *Dynamical Masses for a Complete Census of Local Dwarf Galaxies*. 2019, 1903.047435.

K. Bechtol *et al*. *Dark Matter Science in the Era of LSST*. 2019, 1903.04425.

A. Drlica-Wagner *et al*. *Probing the Fundamental Nature of Dark Matter with the Large Synoptic Survey Telescope*. 2019, 1902.01055.

- Major contributions: Developed dwarf galaxy section and forecasted dark matter constraints.

Interdisciplinary Publications

D. Guilbeault, S. Delecourt, T. Hull, B. S. Desikan, M. Chu, and **E. O. Nadler**. *Online images amplify gender bias*. 2024, Nature, 626, 1049.

E. O. Nadler, E. Darragh-Ford, B. S. Desikan *et al*. *Divergences in Color Perception between Deep Neural Networks and Humans*. 2023, Cognition, 241, 105621.

M. Chu, B. S. Desikan, **E. O. Nadler** *et al*. *Signal in Noise: Exploring Meaning Encoded in Random Character Sequences with Character-Aware Language Models*. 2022, Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, 7120

B. S. Desikan, T. Hull, **E. O. Nadler** *et al*. `comp-syn`: *Perceptually Grounded Word Embeddings with Color*. 2020, Proceedings of the 28th International Conference on Computational Linguistics, 1744.

D. Guilbeault, **E. O. Nadler** *et al*. *Color associations in abstract semantic domains*. 2020, Cognition, 201, 104306.