

Christian Norseth

Website: christiannorseth.com
Address: 5420 S Willow Ln Apt E, Murray, UT 84107
Phone: +1 (801) 906-9745
Email: christian.norseth@utah.edu

Education

Ph.D Physics (In Progress) University of Utah, Salt Lake City, UT	Aug 2025 - May 2028 (Expected)
M.Ss. Physics University of Utah, Salt Lake City, UT	Aug 2023 - Aug 2025
B.Sc. Physics, Emphasis in Astronomy University of Utah, Salt Lake City, UT	Aug 2017 - Dec 2021

Publications

Timer, A., **Norseth, C. T.**, Wik, D. R., "X-Ray Evidence from NuSTAR for a Mach 3 Shock in Merging Galaxy Cluster ZWCL 1856.8", 2026, ApJ, 243, 1003

Norseth, C. T., Wik, D. R., Sarazin, C. L., Sun, M., Gastaldello, F., "Electron-Ion Equilibration in the Merging Galaxy Cluster A665", 2025, ApJ, 62, 992

Dhileepkumar, S., Wik, D. R., **Norseth, C. T.**, "Do Electrons Ghost Ions After a Merger?: A NuSTAR Investigation of Intracluster Plasma in Abell 2146", 2025, RANGE: Undergraduate Research Journal, University of Utah, 26, 2, 83

Norseth, C. T., Wik, D. R., ZuHone, J. A., Miller, E. D., Bautz, M. W., McDonald, M., "Gas Clumping in the Outskirts of Galaxy Clusters: An Assessment of the Sensitivity of STAR-X", 2023, RASTI, 2, 607

Research Experience

Graduate Research Assistant PI: Dr. Daniel Wik <i>University of Utah</i>	Aug 2023 – Present
---	--------------------

- **Abell 754 (2026)**
 - Exploring shock strength and equilibration models in the galaxy cluster merger A754.
- **PHEMTO Core Member (2026)**
 - The Polarimetric High Energy Modular Telescope Observatory - mission concept proposal

- Simulated temperature profile across shock front in A665 and impact on equilibration models
- **X-ray Cross-Calibration** (2025 - Present)
 - Studying the effect of instrumentation on galaxy cluster temperature measurements
 - Will study how instrumentation affects cluster mass measurements and resulting cosmological constraints
- **Double Radio Relic Galaxy Cluster ZWCL+1856** (2024-2026)
 - Remote/Visiting Collaboration with MIT Kavli Institute for Astrophysics and Space Research (PI: Dr. Aysegül Tümer)
 - Investigated IC and B field strength in galaxy cluster merger
 - Visited MIT May 2024
 - *Publishing second author paper*
- **Equilibration in Galaxy Cluster Merger A665** (2023-2025)
 - Conducted detailed temperature analysis across shock front
 - Derived shock heating models for electron-ion equilibration
 - *Published first author paper*

Post-Bacc/Undergrad Research Assistant

Mar 2021 – Aug 2023

PI: Dr. Daniel Wik

University of Utah

- **STAR-X Gas Clumping Simulations**
 - Assessed sensitivity of STAR-X, a NASA MIDEX probe in phase A study
 - Simulated gas clumping in galaxy cluster outskirts
 - Constructed simulations and analysis pipelines
 - *Published first author paper*

Conferences & Presentations

- | | |
|---|----------|
| AAS 248
Pasadena, CA
<i>"Galaxy Cluster Thermalization" (Talk)</i>
Norseth, C. T., Wik, D. R., Sarazin, C., Sun, M., Gastaldello, F. | Jun 2026 |
| The X-ray Universe 2026
Elche, Spain
<i>"Galaxy Cluster Thermalization" (Talk)</i>
Norseth, C. T., Wik, D. R., Sarazin, C., Sun, M., Gastaldello, F. | Jun 2026 |
| Magnetic Fields and Cosmic Rays across Diverse Scales: What's Next?
Harvard & Smithsonian Center for Astrophysics, Cambridge, MA
<i>"Electron-Ion Equilibration in the Merging Galaxy Cluster Abell 665" (Poster/Flash Talk)</i>
Norseth, C. T., Wik, D. R., Sarazin, C., Sun, M., Gastaldello, F. | Sep 2025 |

SWIGART Summer Research Program University of Utah, Salt Lake City, UT <i>"Galaxy Cluster Merger Thermalization Timescales" (Flash Talk)</i> Norseth, C. T. , Wik, D. R	Oct 2024
HEAD Meeting of the AAS Kona, HI <i>"The Unseen: Gas Clumping in The Outskirts of Galaxy Clusters" (Poster)</i> Norseth, C. T. , Wik, D. R, ZuHone, J. A., Miller, E. D., Bautz, M. W.	Mar 2023
AAS Seattle, WA <i>"The Unseen: Gas Clumping in The Outskirts of Galaxy Clusters" (Poster)</i> Norseth, C. T. , Wik, D. R, ZuHone, J. A., Miller, E. D., Bautz, M. W.	Jan 2023
HEAD meeting of the AAS Pittsburgh, PA <i>"The Unseen: Gas Clumping in The Outskirts of Galaxy Clusters" (Poster)</i> Norseth, C. T. , Wik, D. R	Mar 2022
Undergraduate Research Symposium University of Utah, Salt Lake City, UT <i>"The Unseen: Gas Clumping in The Outskirts of Galaxy Clusters" (Poster)</i> Norseth, C. T. , Wik, D. R	Aug 2021

Successful Observing and Funding Proposals

- **PI**, 2026: *Graduate Student Travel Grant*, Department of Physics and Astronomy, University of Utah, \$1250
- **PI**, 2026: *NuSTAR*, "3C 438: Constraining a Shock in one of the Hottest Clusters in the Universe," 300 ks, (Budget PI: Daniel Wik) C priority
- **Co-I**, 2026: *NuSTAR*, "Shock Front and Inverse Compton Search Across the Double Radio Relics of MACS J1752.0+4440," 200 ks (PI: Aysegül Tümer) - B priority
- **Co-I**, 2026: *NuSTAR*, "Triangulum Australis: Uncovering a Merger in an Obscure(d) Galaxy Cluster," 125 ks (PI: Daniel Wik) - B priority
- **Co-I**, 2025: *XRISM*, "Turbulence and Accurate Temperatures in Abell 2204," 250 ks, C priority (PI: Daniel Wik)
- **Co-I**, 2025: *NuSTAR*, "Hot Gas, Hydrostatic Mass, and Inverse Compton Constraints in Abell 1914 & Abell 1689," 220 ks, C priority (PI: Daniel Wik)
- **Co-I**, 2024: *ADAP*, "X-ray Cross-calibration and the Impact on Cluster Cosmology," \$449,098 (PI: Daniel Wik)
- **Co-I**, 2024: *XRISM*, "Gas Dynamics in the Line-of-Sight Merger Abell 2163 with XRISM," 200 ks, \$176,173 (PI: Daniel Wik)

Research Supported by:

NASA NuSTAR GO Grant NNX17AH31G (PI: Daniel Wik)
NASA NuSTAR GO Grant NNH22ZDA001N (PI: Aysegül Tümer)

Service and Teaching Experience

Webmaster

Mar 2026 - Present

Great Salt Lake Audubon

Salt Lake City, UT

- Update and maintain website
- Attend board meetings and discuss upcoming events

AstroCoffee Organizing Committee Member

Mar 2026 - Present

University of Utah

Salt Lake City, UT

- Assist in the organization and facilitation of a journal club.

Science Fair Mentor

Aug 2023 - Present

Science With U

University of Utah, Salt Lake City, UT

- Mentor middle school students with their science fair projects

Teaching Assistant (TA)

Jan 2023 - Dec 2024

University of Utah

Salt Lake City, UT

- Physics for Scientists and Engineers II (PHYS 2220)

Astrophysics Intern

Summer 2022

Evans and Sutherland (E&S)

Salt Lake City, UT

- Designed and scripted planetarium shows using astronomical datasets in the Digistar Command Language

Thing Tank Contributor

Spring 2018

Spark Lab

University of Utah, Salt Lake City, UT

- Assessed how to improve the accessibility of information at the University of Utah Hospital Burn Unit

Honors and Awards

SWIGART Summer Research Fellowship

Summer 2024

University of Utah Flagship Scholarship

Fall 2017-Fall 2018

Rotary Club Scholarship

Fall 2017 Fall 2018
