Curriculum Vitae
Daisuke Nagai

Contact Information

Position: Professor of Physics & Astronomy, Yale University
Director of Graduate Studies, Physics Department, Yale University
Campus Address: Kline Tower Room 451, 219 Prospect Street, New Haven, CT 06511
Mailing Address: P.O. Box 208120, New Haven, CT 06520
Email: daisuke.nagai@yale.edu Phone(Fax): +1-203-432-5370(3824)
URL: http://www.astro.yale.edu/nagai

Positions

Professor of Physics & Astronomy	Yale University	2022-present
Associate Professor of Physics & Astronomy (Tenure)	Yale University	2014-2022
Associate Professor of Physics & Astronomy (Term)	Yale University	2012-2014
Assistant Professor of Physics & Astronomy	Yale University	2008-2012
Sherman Fairchild Postdoctoral Scholar	Caltech	2005-2008

Academic Leadership

Director of Graduate Studies, Physics Department	Yale University	2022-present
Founding Co-Director, Yale Center for Research Computing	Yale University	2015-2019

Education

University of Chicago	Astrophysics	Ph.D. 2005
University of Chicago	Astrophysics	M.S. 2001
University of Michigan	Physics & Mathematics	B.S. 1999

Selected Awards & Fellowships

Honorary Master of Arts, Yale University, 2023
Stephen Murray Distinguished Visiting Lecturer, Harvard CfA, 2018
Cottrell Scholar Award, Research Corporation, 2012
The IUPAP Young Scientist Prize in Astrophysics, 2011
Sherman Fairchild Postdoctoral Prize Fellowship, Caltech, 2005-2008
NASA Graduate Student Researchers Program Fellowship, 2002-2005

Research

My research is broadly focused on understanding the origin, composition, and structure formation of the Universe, specializing in theoretical and computational modeling of galaxy clusters and galaxies and their applications to cosmology and astrophysics.
I am also interested in building AI systems for advancing scientific discoveries.

Publication, Grants & Mentoring

Over 200 publications with 17000+ citations & h-index=65 (from Google Scholar)
Over 200 invited colloquia, seminars, conferences, and workshops
Over $5.5M external grant funding from NASA, NSF, and Research Corporation
Research advisor for 12 postdocs, 24 graduate students, 45 undergraduate students

Teaching

Physics 990 Special Investigations, Spring 2024
Physics 678 Computing for Scientific Research, Spring 2014-2017
Physics/Astronomy 600 Cosmology, Fall 2016
Physics 469/471 Independent Research in Physics, Spring 2019
Physics 441 Quantum Mechanics & Natural Phenomena II, Fall 2013-2015
Physics 420 Statistical Thermodynamics, Fall 2009, 2010
Physics 378 Scientific Computing & Data Science (Course Creation), Fall 2020-2024
Physics/Astronomy 343 Gravity, Astrophysics, and Cosmology, Spring 2010, 2012, 2020, 2023
Physics 205/206 Modern Physical Measurements, Fall 2008
Physics 171 University Physics for the Life Sciences, Spring 2018, 2019, 2021
Physics 170 University Physics for the Life Sciences, Fall 2017

Leadership at Yale

Director of Graduate Studies, Physics Department (2022-present)
Chair, Task Force on Physics & Data Science, Physics Department (2019-2021, 2024-Present)
Member, Data Science Advisory Committee (2021-2022)
Academic Co-Director, Yale Center for Research Computing (2015-2019)
Director, Physics & Astronomy HPC cluster (2013-2015)
Director, Astrophysics HPC cluster (2008-2013)

Institute Memberships

Institute for Foundation of Data Science, Yale University (2023-Present)
The Wu Tsai Institute, Yale University (2022-Present)
Institute for the Fundamental Physics of the Universe, Trieste, Italy (2019-Present)
Simons Center for Computational Astrophysics (2016-Present)

Visiting Professorship

Stephen Murray Distinguished Visitor Program, Harvard CfA (Oct 2018)
Max Planck Institute for Astrophysics, Garching, Germany (Aug-Dec 2018)
Max Planck Institute for Astrophysics, Garching, Germany (May-Jul 2015)
University of Rome ”Tor Vergata”, Rome, Italy (Nov 2011)
Kavli Institute for Theoretical Physics, UC Santa Barbara (Feb-Apr 2011)

International Conference Science Organizing Committees

Cosmic Ecosystems, Perimeter Institute, Waterloo, Canada (2025)
Galaxy Workshop, UC Santa Cruz, CA (2024)
Baryons in the Universe, IPMU, Tokyo, Japan (2024)
Merging Cluster Workshop, Seoul, South Korea (2023)
Observing the mm Universe (Grenoble 2023, Chicago 2025)
Tracing the Structure Formation in the Universe, EAS Symposium, Netherland (2020)
ICM Physics and Modeling, MPA, Garching, Germany (2015, 2018)
The Physics of Galaxy Clusters, Tokyo University of Science, Tokyo, Japan (2013)
CLJ2010: from Massive Galaxy Formation to Dark Energy, IPMU, Japan (2010)

Membership in International Astronomical Missions & Projects

FornaX XMM-Newton Heritage Program (PI: M. Pierre: 2024-Present)
CMB-S4 Senior Member (2021-Present)
CMB-S4 Science Working Group on Galaxy Formation and Evolution (2018-Present)
LSST Dark Energy Science Collaboration: Cluster Science Working Group (2017-Present)
JAXA/ISAS X-ray Space Mission Research Working Group (2021-Present)
Athena X-ray Mission Science Working Group: Galaxy Groups and Clusters (2018-Present)
LEM X-ray Mission Science Working Group (2022-2024)
The Lynx X-ray Surveyor Science Working Group (2016-2022)
International X-ray Observatory (2007-2010)
Chandra XVP program on A133 (PI: A. Vikhlinin, 2012-2015)
Chandra Cluster Cosmology Project (PI: A. Vikhlinin, 2004-2010)
HST observation of Warm Gas in Cluster Outskirts (PI: J. Burchett, 2017-2020, 2024-Present)
HST observation of Warm Gas in Cluster Outskirts (PI: S. Muzahid, 2016-2019)
HST observation of Abell 3827 (PI: R. Massey, 2013-2016)
CCAT SZ Science Working Group (PI: S. Golwala, 2012-2014)
MUSTANG-2 High-Resolution SZE experiment (PI: M. Devlin, 2010-2013)
CARMA Cluster Science Working Group (PI: J. Carlstrom, 2013-2014)
Sunyaev-Zel'dovich Array (PI: J. Carlstrom, 2004-2009)
OVRO/BIMA SZE imaging experiment (PI: J. Carlstrom, 1999-2005)

Colloquium & Seminar Organizer

Yale Cosmology Seminar (2010-2014, 2016-2018, 2022-Present)
Yale Physics Club Colloquium (Fall 2009, Spring 2015)
Yale Astrophysics Journal Club (2008-2009)
Caltech Theoretical Astrophysics & Relativity Seminars (2006-2008)
Caltech Cluster Discussion Group (2006-2007)

Proposals & Project Reviewers

National Science Foundation (USA)
- Division of Astronomical Sciences (2009, 2016 & 2017)
- Petascale Computing Resource Allocation (PRAC) program (2016-2017)
- Major Research Instrumentation Program (2016)
- Astronomy & Astrophysics Postdoctoral Fellowship Program (2016, 2021)

National Aeronautics and Space Administration (USA)
- Astrophysics MIDEX-MO proposal review (2021)
- Astrophysics Theory Program (2011 & 2017)
- Chandra Legacy Program (2024)
- Chandra X-ray Observatory (Cycles 13, 18 & 21 - Chair)
- Einstein Fellowship Program
- Postdoctoral Program

Simons Foundation (USA)
Blavatnik Regional Awards for Young Scientists (USA)
Cottrell Scholar Award (USA)
NSF Blue Waters Project Site Visiting Panel (USA)
Smithsonian Secretary's Research Prize (USA)

The LLNL Institutional Computing Grand Challenge program (USA)
European Research Councils (EU)
German Research Foundation (Germany)
Israel Science Foundation (Israel)
Subaru Telescope Time Allocation Committee (Japan)
Euclid General Investigator Program (USA/EU)
Netherlands Organizations for Scientific Research (Netherlands)
National Science Center (Poland)
Foundation of Polish Science (Poland)
Swiss Federal Institute of Technology in Lausanne (Switzerland)
Career Development Award of Academia Sinica (Taiwan)

Manuscript Reviewer

Astrophysical Journal
Astrophysical Journal Letters
Astrophysics & Space Sciences
Astronomy & Astrophysics
Advances in Space Research
Astroparticle Physics
Journal of Cosmology and Astroparticle Physics
Monthly Notices for Royal Astronomical Society
Nature Astronomy
Physical Review Letters
Physical Review D
Physics Reports
Publications of the Astronomical Society of Australia
Publications of the Astronomical Society of Japan
Publications of the Astronomical Society of the Pacific

Public Outreach

Public lecturer at the Yale Pathways to Science (since 2022)
Public lecturer at Yale's Leitner Family Planetarium & Observatory (since 2008)
Developed and ran events at the Yale Physics Olympics for high school students (2008-2010)

Professional Society Membership

American Astronomical Society (since 2000)
American Physical Society (since 2008)
Association of American Universities (since 2017)
International Astronomical Union (since 2012)

Grants & Funding: over $5.5 million since 2010

Research Grants over $300k:

"Baryon Pasting Project: Toward Precision Modeling of Baryons in Dark Matter Halos for Multiwavelength Galaxy Cluster Surveys"
D. Nagai (PI), $444,650, 2024-2027
NASA Astrophysics Theory Program: ATP23-0154

"The Physics of Multi-Phase Gas Streams Feeding Galaxies from the Cosmic Web"
D. Nagai (PI) with F. van den Bosch (Yale), $733,325, 2023-2026
NSF-BSF Program: AST2307280

"A Data-Driven Approach to the Multi-Wavelength Circumgalactic Revolution"
D. Nagai (PI) with B. Oppenheimer (Colorado), $538,957 ($332,727 to Yale), 2022-2025
NSF Extragalactic Astronomy and Cosmology Program: AST2206055

"Precision Cluster Cosmology with Interpretable Machine Learning"
D. Nagai (Co-PI) with M. Ntampaka (STScI) & H. Trac (CMU), $542,782 ($152,131 to Yale), 2022-2025
NASA Astrophysics Theory Program: 80NSSC22K0821

"Modeling the Cosmic Melting Pots in the Outskirts of Galaxies and Galaxy Clusters"
D. Nagai (PI), $493,971, 2014-2018
NSF Extragalactic Astronomy and Cosmology Program

"Network Infrastructure: The Future of Research & Collaboration"
D. Nagai (Co-PI) with A. Sherman (Yale), $496,253, 2012-2014
NSF 12-541: CC-NIE

"Modeling AGN feedback in Cosmological Simulations"
D. Nagai (PI), $350,000, 2011-2015
NASA Astrophysics Theory Program

"Precision Modeling for the Sunyaev-Zel'dovich Surveys"
D. Nagai (PI), $717,204, 2010-2014
NSF Extragalactic Astronomy and Cosmology Program

Research Grants under $300k:

"A Comprehensive Survey of Diffuse Gas in the Fornax Cluster"
D. Nagai (Co-I) with J. Burchett (NMSU), $124,827 ($41,418 to Yale), 2024-2025
HST-GO-17478

"A Photon Point Cloud Machine Learning Approach for Galaxy Cluster X-ray Mass Estimation"
D. Nagai (PI), $110,794, 2023-2024
NASA Chandra X-ray Observatory Cycle-24: TM3-24007X

"Probing Warm-Hot Gas in the Outskirts of Galaxy Clusters Using Quasar Absorption Lines"
D. Nagai (Co-PI) with S. Muzahid (Leiden), $40,699 (sub-award to Yale), 2017-2019
NASA Hubble Space Telescope Cycle-24

"Modeling the Cosmic Melting Pots in the Outskirts of Galaxy Clusters"
D. Nagai (PI), $63,000, 2013-2016
NASA Chandra X-ray Observatory Cycle-15

"Longevity of dark matter substructure in Abell 3827"
D. Nagai (Co-PI) with R. Massey (Durham), $38,394 (sub-award to Yale), 2013-2016
NASA Hubble Space Telescope Cycle-20

"Computational Cosmology in Classrooms and in Research"
D. Nagai (PI), $75,000, 2012-2016
Research Corporation Cottrell Scholar Award

"Chandra Exploration of the Cosmic Melting Pot in the Virialization Region of Galaxy Clusters"
D. Nagai (Co-PI) with A. Vikhlinin (Harvard SAO), $58,135 (sub-award to Yale), 2011-2014
NASA Chandra X-ray Observatory Cycle-13

Computing Allocation Grants:

"Simulating Cold Gas Streams Feeding High-Redshift Galaxies"
D. Nagai (PI) with Isabel Medlock (Yale), 300k Stampede3 node hours ($62,000), 2024-2025
ACCESS allocation: PHY240040

"The Evolution of Cooling, Self-Gravitating, and Star-Forming Streams in the CGM of Massive High-z Galaxies with XSEDE"
D. Nagai (PI) with N. Mandelker (UCSB), 192,700 SUs ($51,125), 2021-2022
XSEDE allocation: PHY210069

"The Evolution of Magnetized, Cooling Streams in the CGM of Massive High-z Galaxies"
D. Nagai (Co-PI) with N. Mandelker (Yale), 152,000 SUs ($39,459), 2020-2021
XSEDE allocation: AST200033

"Simulating Cosmic Weather in Galaxy Clusters with XSEDE"
D. Nagai (Co-PI) with E. Lau (Yale), 45,000 CPUs ($11,682), 2019-2020
XSEDE allocation: AST190003

Mentoring of Postdoctoral Associates (as a primary supervisor)

Dr. Priyanka Singh (Yale 2021-2023: YCAA Prize Fellow)
Assistant Professor, Indian Institute of Technology Indore (2023-Present)
Postdoc Associate, Astronomical Observatory of Trieste (2018-2021)
Postdoc Associate, IUCAA, Pune, India (2017-2018)
Ph.D., Raman Research Institute, Bangalore, India (2017)

Dr. Erwin Lau (Yale 2011-2017)
Research Scientist, Harvard Smithsonian Astrophysical Observatory (2021-Present)
Research Scientist, University of Miami (2018-2020)
Postdoc Associate, Shanghai Astronomical Observatory, China (2010-2011)
Ph.D., University of Chicago (2010)

Dr. Douglas Rudd (Yale 2010-2012)
Data Scientist, Stitch Fix, San Francisco (2015-Present)
Scientific Computing Consultant, University of Chicago (2012-2015)
Postdoc Associate, Institute for Advanced Study, Princeton (2007-2010)
Ph.D., University of Chicago (2007)

Dr. Suchetana Chatterjee (Yale 2009-2012)
Assistant Professor, Presidency University, Kolkata, India (2013-Present)

Postdoc Associate, University of Wyoming (2012-2013)
Ph.D., University of Pittsburgh (2009)

Dr. Laurie Shaw (Yale 2009-2012)
Research Associate, Harvard University, Cambridge (2017-Present)
Head of Model Statistics & Development, HM Treasury, London, UK (2016-2017)
Analyst at Winston Capital Management, London, UK (2012-2016)
Postdoc Associate, McGill University (2006-2009)
Ph.D., University of Cambridge (2006)

Dr. Zheng Zheng (Yale 2009-2011: YCAA Prize Fellow)
Professor, University of Utah, Salt Lake City (2021-Present)
Associate Professor, University of Utah, Salt Lake City (2015-2021)
Assistant Professor, University of Utah, Salt Lake City (2011-2015)
John N. Bahcall Fellow, Institute for Advanced Study, Princeton (2008-2009)
Hubble Fellow, Institute for Advanced Study, Princeton (2004-2007)
Ph.D., Ohio State University (2004)

Mentoring of Postdoctoral Associates (as a co-supervisor or collaborator)

Dr. Michael Tremmel (Yale 2017-2022: YCAA & NSF Prize Fellow)
Assistant Professor, University College Cork, UK (2023-Present)
NSF Prize Fellow, Yale (2021-2022)
YCAA Prize Fellow, Yale (2017-2021)
Ph.D., University of Washington (2017)

Dr. Nir Mandelker (Yale 2016-2020: Tschira Postdoctoral Fellow)
Assistant Professor, Hebrew University, Jerusalem, Israel (2021-Present)
KITP Postdoc Fellow, UC Santa Barbara (2020-2021)
Ph.D., Hebrew University (2016)

Dr. Nico Cappelluti (Yale 2015-2017: YCAA Prize Fellow)
Assistant Professor, University of Miami (2018-Present)
INAF International Postdoc Fellow, INAF-OABO, Bologna, Italy (2010-2015)
Max Planck Institute for Extraterrestrial Physics (MPE), Garching, Germany (2007-2010)
Ph.D., MPE & TUM (2007)

Dr. Andrew Hearin (Yale 2014-2017: YCAA Prize Fellow)
Physicist, Argonne National Laboratory (2022-Present)
Assistant Physicist, Argonne National Laboratory (2017-2022)
Postdoc Associate, Fermi National Laboratory (2012-2014)
Ph.D., University of Pittsburgh (2012)

Dr. Andrew Wetzel (Yale 2011-2012)
Associate Professor, University of California, Davis (2021-Present)
Assistant Professor, University of California, Davis (2017-2021)
Moore Prize Postdoc Fellow, Caltech (2013-2017)
Nashman Prize Postdoc Fellow, Carnegie Observatory (2013-2017)
Ph.D., University of California, Berkeley (2010)

Dr. Suman Bhattacharya (Argonne National Laboratory 2011-2013)

Data Scientist, ThoughtWorks, Uber, & DocuSign, San Francisco (2014-Present)
Postdoc Associate, Los Alamos National Laboratory (2008-2011)
Ph.D., University of Pittsburgh (2008)

Mentoring of Graduate Student Research (Ph.D.)

Isabel Medlock (Yale Astronomy, 2021-Present)
Ph.D. thesis: "Cosmological Simulations of Multi-Phase Gas Streams feeding Galaxies"
Theory project: "Probing the Physics of CGM using Fast Radio Bursts"

Naomi Gluck (Yale Physics, 2021-Present: co-supervised with Prof. Earl Bellinger)
Ph.D. thesis: "Stellar Evolution to Galaxy Evolution: Soldering the Gap"
Pre-candidacy project: "Probing CGM with Convolutional Neural Networks"

Han Aung (Yale Physics, Ph.D. 2021)
Zuckermann Prize Postdoc Fellow, Hebrew University (2021-Present)
Ph.D. thesis: "Cosmology with Dark Matter and Gaseous Halos"

Urmila Chadayammuri (Yale Astronomy, Ph.D. 2021)
Associate Editor of Astronomy & Astrophysics, Nature, Berlin, Germany (2024-Present)
Postdoc Associate, Max Planck Institute of Astronomy, Heidelberg, Germany (2023-2024)
Postdoc Associate, Harvard Smithsonian Astrophysical Observatory (2021-2023)
Ph.D. thesis: "Modeling AGN feedback and Mergers in Galaxy Clusters"
SAO Predoctoral Fellow, Harvard CfA (2018-2021)

Camille Avestruz (Yale Physics, Ph.D. 2015)
Assistant Professor, University of Michigan (2021-Present)
LSA Collegiate Postdoctoral Fellowship, University of Michigan (2019-2020)
Enrico Fermi Prize Postdoc Fellow, University of Chicago (2015-2019)
KICP Prize Postdoc Fellow, University of Chicago (2015-2019)
Provost's Career Enhancement Postdoc Scholarship, University of Chicago (2015-2017)
Ph.D. thesis: "Cosmological Simulations of Galaxy Cluster Outskirts"
Awarded D. Allan Bromley Graduate Fellowship in Physics, 2013
Awarded NSF Graduate Student Fellowship, 2010

Kaylea Nelson (Yale Astronomy, Ph.D. 2015)
Director, Arts & Sciences Research Computing, YCRC (2024-Present)
Computational Research Support Analyst, Yale Center for Research Computing (2015-2024)
Ph.D. thesis: "Effects of Mergers and Dynamical State of Galaxy Clusters"

Erwin Lau (Chicago, Ph.D. 2010: co-supervised with Prof. Andrey Kravtsov)
Research Scientist, Harvard Smithsonian Astrophysical Observatory (2021-Present)
Postdoc Associate, University of Miami (2018-2020)
Postdoc Associate, Yale University (2011-2017)
Postdoc Associate, Shanghai Astronomical Observatory, China (2010-2011)

Tony Mroczkowski (Columbia, Ph.D. 2009: co-supervised with Prof. Amber Miller)
Astronomer & Millimeter Instrument Scientist, European Southern Observatory (2016-Present)
National Research Council Fellow, US Naval Research Laboratory (2013-2016)
Einstein Fellow, University of Pennsylvania & NASA JPL (2010-2013)
Postdoctoral Research Assistant, University of Pennsylvania (2008-2010)

Mentoring of Graduate Student Research (Pre-Candidacy or Master's Projects)

Anran Jiao (Yale Statistics & Data Science, 2024-Present)
Practical Work: "Physics Informed Machine Learning"

Max Lovig (Yale Statistics & Data Science, 2023-2024)
Practical Work: "A Photon Point Cloud ML Approach for X-ray Cluster Mass Estimation"

Chloe Neufeld (Yale Astronomy, 2023-2024)
Theory project: "Probing Feedback Physics in CAMELS simulations"

Iver Warburton (Yale Astronomy, 2023-2024)
Theory project: "Cosmology Dependence of Dark Matter Halo Mass Accretion Histories"

Zehao Dou (Yale Statistics & Data Science, 2021-2023)
Practical Work: "A Photon Point Cloud ML Approach for X-ray Cluster Mass Estimation"

Sheridan Green (Yale Physics, 2017-2020)
"Application of Machine Learning to Cosmology with Galaxy Clusters & Cosmic Web"
Awarded NSF Graduate Research Fellowship, 2019

Joshua Burt (Yale Physics 2014-2015)
"Modeling Filaments in the Outskirts of Galaxy Clusters"

Sarah Benjamin (Yale Astronomy 2013-2015)
"Gas Flows into Dark Matter Halos"
Awarded Gruber Graduate Student Fellowship, 2012

Tonima Tasnim Ananna (Yale Physics 2014)
"Hydrodynamical Simulations of Sunyaev-Zel'dovich Surveys"

Benjamin Elder (Yale Physics 2012-2013)
"Cosmological Simulations with Self-Interacting Dark Matter"
Awarded Gruber Graduate Student Fellowship, 2011

Duncan Campbell (Yale Astronomy 2012-2013)
"Merger-Induced Turbulence in Galaxy Clusters"
Awarded Gruber Graduate Student Fellowship, 2011

Allison Merritt (Yale Astronomy 2012)
"Modeling Circum-Galactic Medium with Cosmological Simulations"
Awarded Gruber Graduate Student Fellowship, 2011

Maria Jose Maureira (Yale Astronomy 2011-2012)
"Mock SZ Survey Simulations"
Awarded Fulbright Graduate Student Fellowship, 2011

Luis Vargas (Yale Astronomy 2010-2011)
"Dynamical Heating of the Intracluster Medium"
Awarded NSF Graduate Student Fellowship, 2010

Adele Plunkett (Yale Astronomy 2009-2010)
"Testing Semi-Analytic Models of the ICM with Hydrodynamical Simulations"
Awarded Fulbright Graduate Student Fellowship in 2011
Awarded NSF Graduate Student Fellowship, 2010

Ngoc Nhung Ho (Yale Astronomy 2008-2009)
"Sub-grid Model of Turbulence in Cosmological Simulations"

Mentoring of Undergraduate Student Research

Tanish Chettiar (Yale Physics, 2024-Present)
Junior Project: Applications of Machine Learning to Gravitational Wave Astronomy

Juliana Karp (Yale Astrophysics, 2023-2024)
Junior Project: Probing Multiphase Gas in the Fornax Cluster with HST-COS

Din-Ammar Tolj (Yale Physics, 2023-2024)
Junior Project: Modeling Gas Shape of Dark Matter Halos in TNG-300

Oliver Lin (Yale Physics & Computer Science, 2023-2024)
Freshman Project: Hello Universe Project

Daniel Chang (Yale Astrophysics, 2023-2024)
Senior Essay: Probing CGM Physics with Interpretable Machine Learning

Tristan Weaver (Yale Astrophysics, 2023-2024)
Postbac Project: Galaxy Classification of Galaxies in the Cosmic Web Filaments

K. J. McConnell (Yale Astrophysics, 2022-2024)
Junior Project: "Correlation of Dark Matter, Gas & Stellar Profiles in CAMELS simulations"
Freshman Project: "Roles of AGN and Mergers in Galaxy Evolution"

Finn Gibson (Yale Physics & Mathematics, 2023)
Senior Essay: "Correlation of Dark Matter, Gas & Stellar Profiles in CAMELS simulations"

Billy Kline (Yale Applied Mathematics, 2023)
Master's Student: Massachusetts Institute of Technology, Aeronautics & Astronautics
Senior Essay: "Modeling Dynamical Friction of Infalling Cluster Galaxies"

Noam Scully (Yale Physics, 2022)
Freshman Project: "Magneticum Multi-Cosmology Simulation Project"

Kevin Hu (Yale Applied Mathematics, 2022)
Co-Founder, Neo-backed Stealth Startup
Senior Essay: "Accurate Mass Estimation of Galaxy Groups with Machine Learning"

Mehika Patel (Yale Physics & Sociology, 2022)
Junior Project: "Creating Database for Rubin DESC Project using Google Cloud Platform"

Julia de los Reyes (Yale Astrophysics, 2022)
Junior Project: "Magneticum Multi-Cosmology Simulation Project"

Amanda Butler (Yale Physics, 2021-2022)
Solution Architect, NVIDIA
Howard L. Schultz Prize: Distinction in the Physics Major, Yale University, 2022
Senior Essay: "Probing CGM and IGM with OVII and OVIII in CAMELS Simulations"
Senior Essay: "Statistics of Galaxy Cluster Merge Shocks in Omega500 Simulations"

Ryan Flynn (Yale Physics, 2021-2022)
Graduate Student: Boston University, Physics
Senior Essay: "Unraveling Cosmic Web Physics with Hydrodynamical Simulations"

Agastya Rana (Yale Physics, 2021-2022)
Freshman Project: "Mass Accretion History Dependence of Dynamical Mass Estimates"

Danny Farid (Yale Statistics & Data Science, 2020-2023)
Data Scientist, SpaceX
Senior Essay: "Emulating kinematic SZ Images with Auto-Encoders"
Junior Project: "Classification of Cluster Galaxies with Machine Learning"

Tibor Rothschild (Yale Physics, 2020-Present)
Sophomore Project: "ML Cluster Mass Estimation with Millenium TNG simulations"
Freshman Project: "Emulating SZ Images of Galaxy Clusters with Auto-Encoders"

Dash Stevanovich (Yale Physics, 2020-2023)
Graduate Student: University of Minnesota, Mathematics
DeForest Pioneer Prize: Distinction in the Physics Major, Yale University, 2023
Senior/Junior Project: "A Differentiable Model of Dark Matter Halo Profile"
Sophomore Project: "Probing Plasma Physics with Merging Galaxy Clusters"

Keshav Raghavan (Yale Applied Mathematics & History, 2019-2021)
Master's Student: University of Cambridge, Applied Mathematics & Theoretical Physics
Henry Fellowship: University of Cambridge
Senior Project: "Modeling Splashback & Accretion Shock around Cosmic Sheets"
Junior Project: "Stability of Accretion Shocks around Cooling Filaments"

Jack Ross (Yale Physics, 2019-2020)
Junior Project: "A Machine Learning Approach to X-ray Cluster Mass Estimate"
Sophomore Project: "Simulating Splashback & AccretionShock around Dark Matter Halos"

Luis Fernando Machado Poletti Valle (Yale Astrophysics, 2016-2018 & Yale Postbac 2020-2021)
Graduate Student: ETH Zurich, Physics
Software Engineer, Bloomberg, New York, NY, 2018-2021
George Beckwith Prize in Astronomy, Yale University, 2018
Rosenfeld Science Scholars Fellowship, Yale University, 2017
Senior Essay: "A Study of Baryonic Physics in Galaxy Groups using Romulus Simulations"
Junior Project: "Simulating Quasar Absorption Lines by Warm Gas in Galaxy Clusters"

Emil Öhman (Yale Physics, 2016-2017)
Master's Student: Oxford University, Mathematical & Theoretical Physics
Senior Essay: "Cold Fronts in Galaxy Clusters"
Junior Project: "Improving Refinement Criterion for Galaxy Cluster Simulations"

Mari Kawakatsu (Yale Physics & Sociology, 2016-2017)
Graduate Student: Princeton University, Computational & Applied Mathematics
Senior Essay: "Improving Galaxy Cluster Mass Estimation using Machine Learning"

Julia Menzel (Yale Physics, 2016)
Graduate Student: Massachusetts Institute of Technology, Physics
Gates Cambridge Scholar: University of Cambridge
Howard L. Schultz Prize: Distinction in the Physics Major, Yale University, 2016
Senior Essay: "Characterizing Penetrating Gas Streams in Galaxy Clusters"
Junior Project: "Visualizing Gas Flows in Galaxy Clusters"

Maya Fishbach (Yale Physics, 2013-2015)
Awarded NSF Graduate Student Fellowship, 2017
Graduate Student: University of Chicago, Astrophysics
Howard L. Schultz Prize: Distinction in the Physics Major, Yale University, 2015
Senior Essay: "Evolution of the Filamentary Gas Flows in Simulated Galaxy Clusters"

Junior Project: “Cluster Merger Simulations with Self-Interacting Dark Matter”

Christopher Cappiello (Yale Physics, 2013-2015)
Graduate Student: Ohio State University, Physics
DeForest Pioneer Prize: Distinction in the Physics Major, Yale University, 2015
Senior Essay: “Shapes of Galaxy Clusters”

Liang Yu (Yale Astrophysics, 2012-2014)
Graduate Student: Massachusetts Institute of Technology, Physics
Exceptional Distinction in the Astronomy & Physics Major, Yale University, 2014
George Beckwith Prize in Astronomy, Yale University, 2014
Senior Essay: “Evolution of SZ Scaling Relation of Galaxy Clusters”
Junior Fellow, Yale’s STARS program, 2013-2014
Yale Chapter Sigma Xi Undergraduate Research Award in 2012

Hendrik Kits van Heyningen (Yale Physics, 2013-2014)
Chief Technology Officer, Pilytix, Boston, MA
Distinction in the Mathematics & Physics Major, Yale University, 2014
DeForest Pioneer Prize: Distinction in the Physics Major, Yale University, 2014
Senior Essay: “Modified Gravity & Dark Energy in Spherical Collapse Model”

Wonyong Chung (Yale Physics, 2013)
Graduate Student: Princeton University, Physics
Junior Project: “Analyzing AGN Cluster Simulations”

Ian Vorbach (Yale Physics, 2012)
Master’s Student: Stanford University, Aeronautics & Astronautics
Senior Essay: “Modeling AGN evolution in Galaxy Clusters”

Daniel Steinbrook (Yale Physics, 2011-2012)
Senior Essay: “Probing Gas Motions in Galaxy Clusters with High-Resolution SZ Imaging”

Elizabeth Peng (Yale Physics, 2011-2012)
Master’s Student: University of Paris-Sud, Physics
Senior Essay: “Mock Astro-H Simulations of Galaxy Clusters”

Pearson Miller (Yale Physics, 2010-2012)
Graduate Student: Massachusetts Institute of Technology, Physics
Howard L. Schultz Prize: Distinction in the Physics Major, Yale University, 2014
Freshman/Sophomore Project: “Visualization of Cosmological Simulations”

Jonathan Richardson (Yale Astronomy & Physics, 2009-2011)
Graduate Student: University of Chicago, Astrophysics
Senior Essay: “Modeling AGN Clustering with Halo Occupation Distribution”

Frank Thompson (Yale Mathematics, 2011)
Junior Project: “Mass Assembly Histories of Galaxy Groups”

Michael Laskin (Yale Physics, 2011)
Graduate Student: University of Chicago, Physics
Junior Project: “Characterization of the Sunyaev-Zel’dovich Effect Profiles”

Nicolas Aldana (Yale Physics, 2011)
Howard L. Schultz Prize: Distinction in the Physics Major, Yale University, 2014
Freshman Project: “Visualization of AGN feedback Simulations”

Daksha Rajagopalan (Yale Physics & Environmental Studies, 2010)

Master's Student: University of Aberdeen, Social Anthropology
Sophomore Project: "Lyman-Alpha Emitters"

Joshua Schoenfield (Yale Physics, 2009-2010)
Graduate Student: UC Los Angeles, Physics
Senior Essay: "Scale Dependence of Halo Bias at High-Redshift"

Katherine Rosenfeld (Yale Astronomy & Physics, 2009-2010)
Graduate Student: Harvard University, Astronomy
Senior Project: "Gas Accretion in Galaxy Clusters"

Adam Solomon (Yale Physics, 2009-2010)
Graduate Student: University of Cambridge, Applied Mathematics & Theoretical Physics
Master's degree: Mathematical Tripos, University of Cambridge
Senior Essay: "Detecting Sunyaev-Zel'dovich Effect by Cross-Crrelation"

Jason Kaufman (Yale Physics, 2008-2009)
Graduate Student: UC Santa Barbara, Physics
Master's degree: Mathematical Tripos, University of Cambridge
Senior Essay: "Metallicity Analysis of Galaxy Clusters from Hydrodynamical Simulations"

Sam Post (Yale Physics & Music, 2008-2009)
Graduate Student: Northwestern University, Music
Senior Essay: "Cluster Metal Enrichment & Constraints on Stellar Initial Mass Function"

Yulia Kuznetsova (Caltech Physics, 2007-2008)
Graduate Student: UC San Diego, Physics
Senior Essay: "Mass Estimates of X-ray Clusters"

Ph.D. Dissertation Committee Memberships (31 Ph.D. theses)

2024 Sanah Bhimani (Yale Physics) supervised by Prof. Laura Newburgh
2024 Xinyi Chen (Yale Physics) supervised by Prof. Nikhil Padmanabhan
2023 Wonki Lee (Yonsei Astronomy) supervised by Prof. James Jee
2023 Chuan Tian (Yale Physics) supervised by Prof. Meg Urry
2023 Aritra Ghosh (Yale Astronomy) supervised by Prof. Meg Urry
2023 London Cooper-Troendle (Yale Physics) supervised by Prof. Bonnie Flemming
2022 Daming Li (Yale Physics) supervised by Prof. John Murray
2022 Dhruba Dutta Chowdhury (Yale Astronomy) supervised by Prof. Frank van den Bosch
2021 Sheridan Green (Yale Physics) supervised by Prof. Frank van den Bosch
2021 Daniel Berkowitz (Yale Physics) supervised by Prof. Vincent Moncrief
2021 Luis Saldana (Yale Physics) supervised by Prof. Karsten Keeger
2021 Naim Goksel Karacayli (Yale Physics) supervised by Prof. Nikhil Padmanabhan
2021 Han Aung (Yale Physics) supervised by Daisuke Nagai
2021 Claire Dickey (Yale Astronomy) supervised by Prof. Marla Geha
2021 Urmila Chadayammuri (Yale Astronomy) supervised by Daisuke Nagai
2021 Ana-Roxana Pop (Harvard Astronomy) supervised by Lars Hernquist
2020 Darryl Seligman (Yale Astronomy) supervised by Prof. Greg Laughlin
2019 Michela Paganini (Yale Physics) supervised by Prof. Paul Tipton
2018 Fangzhou Zhu (Yale Physics) supervised by Prof. Nikhil Padmanabhan
2018 Ariana Hackenburg (Yale Physics) supervised by Prof. Bonnie Flemming
2015 Camille Avestruz (Yale Physics) supervised by Daisuke Nagai

2015 Kaylea Nelson (Yale Astronomy) supervised by Daisuke Nagai
2015 Joseph Bae (Yale Physics) supervised by Prof. Vincent Moncrief
2014 Joel Tanner (Yale Astronomy) supervised by Prof. Sarbani Basu
2013 Joo Heon Yoon (Columbia Astronomy) supervised by Prof. Mary Putman
2012 Ngoc Nhung Ho (Yale Astronomy) supervised by Prof. Marla Geha
2011 Amar Vutha (Yale Physics) supervised by Prof. David DeMille
2011 Charles Baldner (Yale Astronomy) supervised by Prof. Sarbani Basu
2011 Anson D'Aloisio (Yale Physics) supervised by Prof. Priya Natarajan
2011 Hal Finkel (Yale Physics) supervised by Prof. Richard Easther
2010 Carrie Cardamone (Yale Astronomy) supervised by Prof. Meg Urry

Institutional & Departmental Committees and Services at Yale University

University Committee
- FAS Faculty IT Advisory (2023-Present)
- Data Science Advisory (2020-2023)
- Tony Massini Postdoctoral Fellowships in Data Science (2023)
- Yale Center for Research Computing (Faculty Co-Director: 2015-2019)
- Yale Center for Research Computing Steering (2015-2019)
- Data Governance (2015-2018)
- Advisory Committee on Library Policy (2014-2016)
- Senior Director of Research Technologies Search (2014)
- High-Performance Computing (2008-2014)

Department of Physics
- Director of Graduate Studies (2022-Present)
- Task Force on Physics and Data Science (Chair: 2019-2021,2024-present)
- YCAA Postdoctoral Fellowship (2008-Present; Chair 2008-2009)
- Mossman Postdoctoral Fellowship (2021)
- Graduate Program Review (2009, Chair 2017, 2020)
- Graduate Admission (2009, 2011-2012, 2019-2020, 2022-Present)
- Graduate Awards (2020-Present)
- Class Schedules and TF Assignments (2023-Present)
- Long Range Planning (2014)
- Physics Club Organizer (2009, 2014)
- Astrophysics Faculty Search (2008-2009)
- Qualifying Exam (2010-2018)
- Qualifying Exam Review (2008)

Department of Astronomy
- Graduate Admission (2019-2020)
- Qualifying Exam (2016)
- Keck/WIYN/SMART Time Allocation (2008)
- Faculty Search (2008)

Talks at Colloquia, Seminars, Conferences & Workshops (with talk titles since 2014)

2024

Cosmology & Galaxy Astrophysics with Simulations & Machine Learning, CCA, New York, NY, DEC
Invited Talk: "Harnessing CAMELS: A Strategy for Precision Cosmology & Galaxy Astrophysics"
Baryons Beyond Galactic Boundaries, IUCAA, Pune, India, DEC
Invited Talk: "Baryons Beyond Galactic Boundaries: Simulator's Perspective"
Institute Colloquium, IISER, Pune, India, DEC
Invited Talk: "Cosmology in the Era of Multi-λ Surveys"
Cosmology in the Next Decade, IIT Indore, Indore, India, NOV
Invited Talk: "Cosmology in the Era of Multi-λ Surveys"
Astronomy Colloquium, IIT Indore, Indore, India, NOV
Invited Talk: "New Frontiers in Cosmology: Bridging Large and Small Scales in the Next Decade"
Astrophysics Colloquium, Presidency University, Kolkata, India, NOV
Invited Talk: "Cosmology in the Era of Multi-λ Surveys"
Cosmology Seminar, Perimeter Institute, Waterloo, Ontario, Canada, NOV
Invited Talk: "Cosmology in the Era of Multi-λ Surveys"
FornaX: The XMM-Euclid Deep Field workshop, Maintenon, France, OCT
Invited Talk: "Baryon Pasting for Forward-Modeling Multi-λ Surveys"
Astrophysics Seminar, CEA Paris-Saclay, France, OCT
Invited Talk: "Cosmology in the Era of Multi-Wavelength Surveys"
Santa Cruz Galaxy Workshop, UC Santa Cruz, CA, AUG
Invited Talk: "Cosmology & Astrophysics with Hot Gaseous Halos"
Galaxy Groups in the Era of eROSITA and Euclid, Sesto, Italy, JUN
Invited Review: "Cosmology & Astrophysics with Galaxy Groups"
The Physics of the Intracluster Medium: Theory and Computation, Ann Arbor, MI, JUN
Invited Talk: "Recent Advances in ICM & CGM Modeling"
Cosmic Ray Feedback in Galaxies and Galaxy Clusters, Aspen, CO, MAY
Chalk Talk: "Probing the Physics of Supermassive Black Hole Feedback"
Institute Colloquium, IPMU, Tokyo, Japan, A*pr*
Invited Talk: "Cosmology in the Era of Multi-Wavelength Astronomical Surveys"
Baryons in the Universe, IPMU, Tokyo, Japan, A*pr*
Invited Talk: "Baryon Pasting Project"

2023

Astronomy Colloquium, Yonsei University, Soul, South Korea, D*ec*
Invited Talk: "Cosmology with Multi-Wavelength Astronomical Surveys"
Merging Cluster Workshop, Yonsei University, Soul, South Korea, D*ec*
Invited Talk: "Merging Galaxy Clusters as Astrophysical Laboratories"
Dissecting Cluster Cosmology, IFPU, Trieste, Italy, J*ul*
Invited Talk: "A Roadmap for Cluster Cosmology"
Observing the mm Universe at mm wavelengths, Grenoble, France, J*un*
Invited Talk: "Baryon Pasting Project"
Cosmology Seminar, Stony Brook University, Stony Brook, NY, A*pr*
Invited Talk: "Physical vs. Data-Driven Approaches for Multi-Wavelength Cosmological Surveys"
Professional Development Series for Physics Postdocs, Yale University, New Haven, A*pr*
Invited Panelist: "Tips and advice on how to make most out of a postdoc career"
Astronomy Colloquium, Yale University, New Haven, M*ar*
Invited Talk for Prospective Students: " Computational & Data-Driven Cosmology at Yale"

APS Colloquium, University of Colorado, Boulder, CO, Mar
Invited Talk: " Physical vs. Data-Driven Approaches in the Era of Multi-Wavelength Surveys"
Super-DIOS Collaboration Meeting, Tokyo University of Science, Tokyo, Japan, Jan
Invited Participant: "A Roadmap for Studying Missing Baryons in the Cosmic Web"

2022

Yale Data Science Symposium, Yale University, CT, Nov
Invited Speaker: Proposed Initiative in Computational Science & Engineering
NASA AI Ethics Principles and Responsibilities Workshop (Online), JUL-Sep
Invited Participant: Hosted by American Geophysical Union & funded by NASA
Physics of the Intracluster Medium: 6th Theory and Computation, Copenhagen, Denmark, AUG
Invited Talk: "The Physics of Galaxy Cluster Outskirts"
Intriguing Inconsistencies in the Growth of Structure over Cosmic Time, Sesto, Italy, JUL
Invited Talk: "Towards Precision Modeling for Cross-Survey Cross-Correlation Cosmology"
Yale Pathways to Science, New Haven, CT, JUL
Invited Talk: "Scientific Discovery through Advanced Computing"
Sunyaev-Zel'dovich Science in the 2020s, CCA, New York, NY, JUN
Invited Talk: "Towards Precision Modeling for SZ surveys"
MIAPP workshop: Advances in Cosmology through Numerical Simulations, Munich, Germany, MAY
Invited Talk: "Baryon Pasting Project"
Machine Learning and Cosmology Workshop, MAR
Invited Panelist: CAMELS: Machine Learning and Cosmology at the Field Level
Physics Colloquium at University of Kentucky, Lexington, KA, MAR
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"
SPS Zone Meeting Panel Discussion (Online), MAR
Invited Faculty Panelist: Imposter Syndrome Experiences Panel

2021

Data Science Project Match, Yale University, CT, DEC
Project Pitch: "Cosmology x Data Science"
CMB-S4 Collaboration Meeting (Online), AUG
Invited Talk: "Modeling Multi-wavelength Cosmological Surveys with Baryon Pasting"
NASA SMD AI Workshop (Online), MAY
Invited Participant: Development of actionable insight and strategic guidelines for NASA Science
Fundamentals of Gaseous Halos (Online), KITP, UCSB, CA, JAN-MAR
Session Co-Organizer: "Probing CGM with Sunyaev-Zel'dovich Effects"
Session Co-Organizer: "Galaxy Quenching in the Cosmic Webs"

2020

Detecting Missing Baryons in the Universe, Beijing, China, OCT
Invited Talk: "Modeling the Missing Baryons in the Cosmic Web" - Postponed due to COVID-19
Rubin LSST DESC Meeting, CL General Session (Online), JUL
Contributed Talk: "The Baryon Pasting Project"
European Astronomical Society 2020, Leiden, Netherland, JUN
Session Co-Organizer: Tracing the Structure Formation in the Universe
Contributed Talk: "The Baryon Pasting Project"
Cosmic Cartography 2020, IPMU, Tokyo, Japan, APR
Invited Talk: "Gas-Galaxy-Dark Matter Connection" - Postponed due to COVID-19
Mapping the X-ray sky with SRG: First Results from eROSITA & ART-XC, Garching, Germany, MAR

Invited Talk: "ICM physics: how to use clusters for cosmology" - Postponed due to COVID-19

Galaxy Quenching and Transformation throughout Cosmic Time, Aspen, CO, FEB
Contributed Talk: "Galaxy Quenching: Insights from Romulus Simulations"

Super-DIOS Collaboration Meeting, JAXA/ISAS, Tokyo, Japan JAN
Session Co-Organizer: "Simulating WHIM and Cluster Outskirts for Super-DIOS"

2019

Universality: Turbulence Across Vast Scales, CCA, New York, NY, DEC
Discussion Session Organizer: Turbulence in Astrophysical & Biological Sciences

Astronomy Colloquium at University of Massachusetts, Amherst, MA, OCT
Invited Colloquium: "A New Frontier for Cosmology and Galaxy Formation"

Galaxies & Cosmology Seminar at Harvard CfA, Cambridge, MA, SEP
Invited Seminar: "Galaxy Clusters: A New Platform for Cosmology & Galaxy Formation"

Galaxy Cluster Group Seminar at Harvard CfA, Cambridge, MA, SEP
Invited Seminar: "Physics-based vs. Data-driven Approach to Cluster Cosmology"

Physics Faculty Retreat, Yale University, New Haven, CT, AUG
Lightening Talk: "Physics & Data Science Connection"

Santa Cruz Galaxy Workshop, UC Santa Cruz, CA, AUG
Invited Talk: "Cosmology and Astrophysics with CGM in the Stage IV Era"

Kavli Summer Program in Astrophysics, UC Santa Cruz, CA, JUL
Invited Talk: "Physics-based vs. Data-driven Approach in the Era of Large Astronomical Surveys"

The Turbulent Life of Cosmic Baryons, Aspen, CO, JUN
Session Moderator: "Hydrodynamic & Plasma Instabilities in Galaxies & Galaxy Clusters"

Observing the millimeter Universe with the NICA2 camera, LPSC, Grenoble, France, JUN
Invited Talk: "Probing Physics of Galaxy Cluster Outskirts with High-Resolution SZ observations"

Gus Fest 2019, Ann Arbor, MI, MAY
Invited Talk: "Cluster Cosmology: Simulation+Observation+Theory Connection"

Splashback Workshop, Stanford University, CA, MAY
Session Organizer: "Connecting Splashback and Accretion Shocks"
Session Co-Organizer: "Opportunities and Challenges with Future Galaxy Surveys"

Super-DIOS Collaboration Meeting, JAXA/ISAS, Tokyo, Japan JAN
Invited Talk: "Probing WHIM and Cluster Outskirts with Super-DIOS"

2018

The CMB in HD: The Low-noise High-resolution Frontier, CCA, New York, NY, DEC
Invited talk: "Toward Cluster Outskirts and High-z"

Astrophysics Seminar at U. Trieste, Trieste, Italy, DEC
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"

Cosmology Group Meeting at Harvard CfA, Cambridge, MA, NOV
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"

ITC Luncheon at Harvard CfA, Cambridge, MA, NOV
Invited Colloquium: "The Physics of Galaxy Cluster Outskirts"

Stephen Murray Lecture at Harvard CfA, Cambridge, MA, OCT
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"

Physics Club Colloquium at Yale University, New Haven, CT, OCT
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"

ICM Physics and Modeling, MPA, Garching, Germany, OCT
Session Organizer: "ICM in Surveys"

Institute Seminar at MPA, Garching, Germany, SEP
Invited Seminar: "Cosmology with Kinetic Sunyaev-Zeldovich Effect"
Kavli Summer Program in Astrophysics, CCA, New York, NY, JUL
Invited Talk: "Semi-Analytic Model of the ICM for Multi-Wavelength Cluster Surveys"
Kavli Summer Program in Astrophysics, CCA, New York, NY, JUN
Invited Talk: "The Physics of the Intracluster Medium"
WHIM and Cluster Outskirts, Guntersville, AL, JUN
Invited Talk: "Hydrodynamical Simulations of Cluster Outskirts and WHIM"
Galaxy Cluster Workshop, CCA, New York, NY, MAY
Invited Talk: "Modeling Challenges for Cluster Astrophysics"
SnowCluster 2018 Winter Workshop, Snowbird, UT, MAR
Contributed Talk: "Cluster Astrophysics in the Era of Multi-Wavelength Cosmology"
SnowPAC 2018 Winter Workshop, Snowbird, UT, MAR
Contributed Talk: "Modeling Challenges in the Era of Multi-Wavelength Cosmology"
Modeling the Extragalactic Sky, UC Berkeley, CA, JAN
Invited Talk: "Modeling Challenges for Cluster Astrophysics in the Stage IV Era"

2017

Clusters of Galaxies: Physics and Cosmology, ISSI, Bern, Switzerland, NOV
Invited Talk: "Cluster Cosmology from a Simulator's Perspective"
Physics of the Intracluster Medium, Beijing, China, APR
Invited Review: "Hydrodynamical Simulations of Galaxy Clusters"
Physics Seminar at Trinity College, Hartford, CT, MAR
Invited Seminar: "Computational Cosmology"
Astrophysics Seminar at Tokyo Metropolitan University, Tokyo, Japan, JAN
Invited Seminar: "Cosmology & Astrophysics with Galaxy Clusters"

2016

Yale Day of Data, Yale University, New Haven, CT, DEC
Invited Talk: "Open Data Challenge in Computational Astrophysics"
The Physics of the Intracluster Medium: Theory and Computation, Minneapolis, MN, AUG
Invited Talk: "New Kid on the Block: Kinematic Sunyaev-Zel'dovich Effect"
Physics Club Colloquium (Graduate Student Open House) at Yale University, New Haven, CT, APR
Invited Colloquium: "Computational Cosmology"
Astronomy Colloquium at Pennsylvania State University, University Park, PA, MAR
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"
SnowPAC 2016: The Galaxy-Halo Connection, Snowbird, UT, MAR
Invited Talk: "Physics of Galaxy Cluster Outskirts"

2015

AstroChicago 123, University of Chicago, Hyde Park, IL, NOV
Invited Panelist: "Future of Computational Astrophysics"
Astronomy & Space Sciences Colloquium at Cornell University, Ithaca, NY, SEP
Invited Colloquium: ""Cosmology & Astrophysics with Galaxy Clusters"
Cosmological X-ray Surveys, XXIX IAU General Assembly, Honolulu, HI, AUG
Invited Talk: "Physics and Evolution of Galaxy Clusters"
Cosmology Seminar at Ludwig Maximilians University, Munich, Germany, JUL
Invited Seminar: "Galaxy Cluster Outskirts: New Frontiers for Cosmology & Astrophysics"

Astrophysics Colloquium at University of Bonn, Bonn, Germany, JUL
Invited Colloquium: "Galaxy Cluster Outskirts: New Frontiers for Cosmology & Astrophysics"
High Energy Astrophysics Seminar at MPA, Garching, Germany, JUL
Invited Seminar: "The Physical Nature of Cosmic Accretion of Baryons & Dark Matter"
Cosmology Lecture Series at MPA, Garching, Germany, JUN
Invited Talk: "Physics of Galaxy Clusters"
Munich Joint Astronomy Colloquium at MPA/MPE/ESO, Garching, Germany, JUN
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"
Cosmological Simulations: from Galaxies to Large Scales, Sesto, Italy, JUN
Invited Talk: "Cosmological Simulations of Galaxy Clusters: from Cores to Outskirts"
ICM Physics and Modeling, MPA, Garching, Germany, JUN
Summary Talk: "Cluster Outskirts: New Crossroads of Astrophysics and Cosmology"
Cosmology Seminar at MPA, Garching, Germany, MAY
Invited Seminar: "ICM Physics and the Mass of Galaxy Clusters"
Yale Day of Data Spring Discussion Series, Yale University, New Haven, CT, APR
Invited Talk: "Computer Simulation Recreates Universe From Big Bang to Today"
SnowCluster 2015 Winter Workshop, Snowbird, UT, MAR
Invited Talk: "Modeling the Outskirts of Galaxy Clusters"

2014

Cosmology with Galaxy Clusters in the XXI century, IFT-UAM/CSIC, Madrid, Spain, NOV
Invited Review: "ICM Physics and the Mass of Galaxy Clusters"
ISAS Astrophysics Colloquium at Japan Aerospace Exploration Agency, Tokyo, Japan, DEC
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"
The Physics of the Intracluster Medium: Theory and Computation, Copenhagen, Denmark, AUG
Invited Talk: "Gas Accretion & Non-Equilibrium Phenomena in the Outskirts of Galaxy Clusters"
Inhomogeneities in Intracluster Plasma, KIPAC/Stanford, CA, JUL
Invited Review: "Simulations of ICM inhomogeneities in Galaxy Clusters"
Future Directions of Galaxy Cluster Surveys, Paris, France, JUN
Invited Review: "The Astrophysical Interplay between Dark Matter and Baryons"
Zeldovich 100: Cosmology and Relativistic Astrophysics, IKI, Moscow, Russia, JUN
Contributed Talk: "Hydrodynamical Simulations of Galaxy Cluster Outskirts"
Astrophysics Seminar at Institute for Advanced Study, Princeton, NJ, MAR
Invited Colloquium: "Cosmology & Astrophysics with Galaxy Clusters"
Astrophysics Lunch Seminar at Institute for Advanced Study, Princeton, NJ, MAR
Invited Lunch Seminar: "Gas Accretion into Galaxies & Galaxy Clusters"
Massive Galaxies: Aspen Winter Conference, Aspen, CO, FEB
Invited Talk: "Gas Accretion into Galaxies and Galaxy Clusters"

2013

The Physics of Galaxy Clusters, Tokyo University of Science, Tokyo, Japan, DEC
Space Science Laboratory Colloquium at UC Berkeley, Berkeley, CA, DEC
Joint Astrophysics Seminar at McGill & U.Montreal, Montreal, Canada, NOV
The XVIII Ciclo de Cursos Especiais, Observatorio Nacional, Rio de Janeiro, Brazil, OCT
Physics Club Colloquium at Yale University, New Haven, CT, SEP
Astrophysics Seminar at Columbia University, New York, NY, SEP
New Light in Cosmology from the CMB, ICTP, Trieste, Italy, AUG
Tracing Cosmic Evolution with Clusters of Galaxies, Sesto Pusteria, Italy, JUL

Feeding, Feedback, and Fireworks, Hamilton Island, Australia, JUN
ESLAB 2013: The Universe as seen by Planck, Noordwijk, Netherlands, APR
GRAPPA Seminar at University of Amsterdam, Amsterdam, Netherlands, APR
SnowCluster 2013, Snowbird, UT, MAR
Astrophysics Seminar at Purdue University, West Lafayette, IN, FEB
CCAT Cosmology Meeting, Caltech, CA, JAN

2012

The 26th Texas Symposium on Relativistic Astrophysics, Sao Paulo, Brazil, DEC
Galaxy Cluster Cosmology in the Real and Simulated Universe, Ringberg, Germany, NOV
Postdoc Career Development Colloquium at NASA GSFC, MD, OCT
Astronomy Colloquium at University of Maryland, College Park, MD, OCT
Astronomy Colloquium at Saint Mary's University, Halifax, Canada, SEP
Science with eROSITA and ART-XC aboard Spectrum-RG, Kazan, Russia, SEP
Cosmophysics Seminar at KEK, Tsukuba, Japan, AUG
The Physics of the Intracluster Medium: Theory and Computation, Ann Arbor, MI, AUG
IAU XXVIII General Assembly, Beijing, China, AUG
Cottrell Scholar Conference, Tucson, AZ, JUL
220th AAS Meeting, Anchorage, AK, JUN
Missing Baryons in the Local Universe, Cervia Milano Marittima, Italy, MAY
Astrophysics Seminar at American Museum of Natural History, NY, MAY
Cluster Hot Gas Workshop, Princeton, NJ, APR
High Energy Astrophysics Seminar at University of Utah, SLC, UT, MAR

2011

Invited Lectures at Universita di Roma "Tor Vergata", Rome, Italy, NOV
Physics Club Colloquium at Yale University, New Haven, CT, OCT
Tri-State Astronomy Conference, New York, NY, OCT
Cosmology with X-ray and SZ Observations of Galaxy Clusters, Huntsville, AL, SEP
Astronomy Colloquium at Boston University, Boston, MA, SEP
Structure in Clusters and Groups of Galaxies, Harvard CfA, Boston, MA, JUL
A New Era for SZ Science, Santander, Spain, JUN
Astrophysics Seminar at Princeton University, Princeton, NJ, MAY
Astrophysics Seminar at CITA, Toronto, Canada, MAY
KIPAC Cosmology Seminar at Stanford University, Palo Alto, CA, APR
Astrophysics and Cosmology with Galaxy Clusters, KITP, Santa Barbara, CA, MAR
SnowPAC 2011 winter workshop, Snowbird, UT, JAN

2010

Astro-H workshop, Tokyo University of Science, Tokyo, Japan, DEC
Astronomy Colloquium at Yale University, New Haven, CT, DEC
Non-thermal Phenomena in Colliding Galaxy Clusters, Nice, France, NOV
Astronomy Colloquium at Columbia University, New York, NY, OCT
The Physics of the Intracluster Medium: Theory & Computation, Ann Arbor, MI, AUG
Astrophysics Seminar at University of Pennsylvania, Philadelphia, PA, AUG
Galaxy Clusters: Observations, Physics, and Cosmology, Garching, Germany, JUL
Astrophysics Seminar at IPMU, Kashiwa, Japan, JUL
CL J2010: from Massive Galaxy Formation to Dark Energy, IPMU, Japan, JUN

Cosmology Seminar at Yale University, New Haven, CT, MAY
SnowCluster 2010 winter workshop, Snowbird, UT, MAR

2009

Astrophysics Seminar at Rutgers University, Piscataway, NJ, DEC
Informal Astrophysics Seminar at Institute for Advanced Study, Princeton, NJ, DEC
Astronomy Colloquium at University of Texas, Austin, TX, NOV
KICP Colloquium at University of Chicago, IL, MAY
Theoretical Astrophysics Center Seminar at UC Berkeley, CA, APR
Sunyaev-Zeldovich Universe & the Future of Cluster Cosmology, PI, Canada, APR
Understanding the Dark Sector: Dark Matter and Dark Energy, Aspen, CO, JAN

2008

The 24th Texas Symposium on Relativistic Astrophysics, Vancouver, Canada, DEC
Astrophysics Seminar at Los Alamos National Lab, Los Alamos, NM, APR
Cosmology Seminar at Brown University, Providence, RI, MAR
ISCAP Seminar at Columbia University, New York, NY, FEB
YCAA Seminar at Yale University, New Haven, CT, FEB
ACKS Seminar at Stanford/SLAC, Palo Alto, CA, FEB
Physics Colloquium at University of Pittsburgh, Pittsburgh, PA, JAN
Astrophysics Seminar at University of Pennsylvania, Philadelphia, PA, JAN
Physics Colloquium at Carnegie-Mellon University, Pittsburgh, PA, JAN

2007

TASC07 Meeting at UCLA, Los Angeles, CA, NOV
KIPAC Cosmology Seminar at Stanford University, Palo Alto, CA, OCT
ITC Colloquium at Harvard CfA, Cambridge, MA, SEP
Santa Fe Cosmology Summer Workshop, Santa Fe, NM, JUL
Tracing Cosmic Evolution with Clusters of Galaxies, Sesto Alto Adige, Italy, JUN
Astronomy Colloquium at University of Michigan, Ann Arbor, MI, MAY
Observational Cosmology Group Seminar at Caltech, Pasadena, CA, MAY
Carnegie-Caltech Workshop, Lake Arrowhead, CA, APR
Astrophysics Seminar at Los Alamos National Lab, Los Alamos, NM, APR
Clusters of Galaxies as Cosmological Probes, Aspen, CO, FEB

2006

Gravitational Lensing Workshop Colloquium, KITP, Santa Barbara, CA, OCT
Heating vs. Cooling in Galaxies and Clusters of Galaxies, Garching, Germany, AUG
Astrophysics Seminar at UC Santa Barbara, CA, MAY
CASS Journal Club Seminar at UC San Diego, CA, MAR
Astrophysics Seminar at UC Irvine, CA, JAN

2005

TASC05 Meeting, Caltech, CA, OCT
The Future of Cosmology with Clusters of Galaxies, Kona, HI, FEB

2004

Fundamental Physics from Clusters of Galaxies, Fermilab, IL, DEC
ITC Seminar at Harvard CfA, Cambridge, MA, NOV

Cosmology Seminar at UC Berkeley, CA, OCT
Theoretical Astrophysics Seminar at UC Santa Cruz, CA, OCT
Theoretical Astrophysics & Relativity Seminar at Caltech, Pasadena, CA, SEP
The SZA science meeting, Chicago, IL, JUN
IAU Colloquium 195 : "Outskirts of Galaxy Clusters", Torino, Italy, MAR

2003

Cosmology with Sunyaev-Zel'dovich Cluster Surveys, Chicago, IL, SEP
Astrophysics Seminar at National Astronomical Observatory, Japan, JUL
Astrophysics Seminar at University of Tokyo, Japan, JUN
US-Japan Seminar on Sunyaev-Zel'dovich Effect, Kiyosato, Japan, JUN
Great Lakes Cosmology VII, Ann Arbor, MI, MAY
HEAD meeting, Mt.Tremblant, Quebec, MAR
Cosmology Seminar at UC Davis, CA, FEB
Carnegie Symposium: Clusters of Galaxies, Pasadena, CA, JAN

2002

Soft X-ray emissions from Clusters of Galaxies, Huntsville, AL, DEC
COSMO-02, Chicago, IL, SEP 2002
Matter and Energy in Clusters of Galaxies, Chung-Li, Taiwan, APR

1999

194th American Astronomical Society meeting, Chicago, IL, MAY

LIST OF PUBLICATIONS
Daisuke Nagai

Refereed Journal Articles: In Preparation

186. E. M. Silich, E. Bellomi, J. Sayers, J. ZuHone, U. Chadayammuri, S. Golwala, D. Hughes, A. Montana, T. Mroczkowski, **D. Nagai**, D. Sanchez, S. A. Stanford, G. Wilson, M. Zemcov, A. Zitrin, *Improved Constraints on Mergers with SZ, Hydrodynamical simulations, Optical, and X-ray (ICM-SHOX). Paper II: Galaxy cluster sample overview*, to be submitted to ApJ

185. N. Mandelker, C. Pfrommer, T. Berlock, P. Oh, **D. Nagai**, A. Dekel, Y. Birnboim, *Magnetized and Cooling Gas Streams feeding Galaxies*, to be submitted to MNRAS

184. Y. Zhou, E. Lau, N. Yamasaki, K. Mitsuda, **D. Nagai**, D. McCammon, A. Bogdan, *Large Scale Signals Detected in the Spatial Power Spectrum Analysis of the eROSITA Final Equatorial Depth Survey*, to be submitted to ApJ

183. I. Warburton, N. Gluck, **D. Nagai**, M. Ntampaka, H. Aung, S. Bose, *Cosmology Dependence of the Universal Mass Accretion Rate of Dark Matter Halos*, to be submitted to ApJ

182. F. Nikakhtar, **D. Nagai**, R. Sheth, *Morphological characteristics of protohalos and their connection to halo formation histories*, to be submitted to ApJ

181. C. Tian, C. M. Urry, et al., *Morphological Parameters of $z < 1$ AGN Host Galaxies in Stripe 82X: Evidence Suggesting a Significant Dependency of AGN-Galaxy Co-evolution on X-ray Luminosity*, to be submitted to ApJ

180. B. D. Oppenheimer, G. M. Voit, Y. Rahe, N. Battaglia, J. Bregman, J. Burchett, D. Eckert, Y. Faerman, J. Gibson, C. Hummels, I. Medlock, **D. Nagai**, M. Putman, M. Sun, J. Werk, Y. Zhang, et al., *The Descriptive Parametric Model I: Gaseous Profiles for Galaxies, Groups, and Clusters*, to be submitted to ApJ

179. N. Gluck, E. Lau, **D. Nagai**, *A Differentiable Model for Hot Gas Profiles in Galaxy Clusters and Groups*, to be submitted to ApJ

178. I. Medlock, **D. Nagai**, et al.. *Constraining the Effect of Baryonic Feedback on the Matter Power Spectrum with Fast Radio Bursts*, to be submitted to ApJ

Refereed Journal Articles: Submitted / Under Review

177. J. Soltis, M. Ntampaka, B. Diemer, J. ZuHone, S. Bose, A. M. Delgado, B. Hadzhiyska, C. Hernández-Aguayo, **D. Nagai**, H. Trac, *A Multi-Wavelength Technique for Estimating Galaxy Cluster Mass Accretion Rates*, submitted to ApJ *(astro-ph/2412.05370)*

176. E. Lau, **D. Nagai**, A. Bogdan, I. Medlock, B. D. Oppenheimer, N. Battaglia, S. Genel, D. Anglés-Alcázar, F. Villaescusa-Navarro, *X-raying CAMELS: Constraing Brayonic Feedback in the Circum-Galactic Medium with the CAMELS simulations and eRASS X-ray Observations*, submitted to ApJ *(astro-ph/2412.04559)*

175. P. Holguin Luna, J. N. Burchett, **D. Nagai**, N. Tejos, T. Tripp, J. X. Prochaska, *A Survey of H* I *and O* VI *Absorption Lines in the Outskirts of $z \lesssim 0.3$ Galaxy Clusters*, submitted to ApJ *(astro-ph/2411.13551)*

174. E. Lau, **D. Nagai**, A. Farahi, T. Ishiyama, H. Miyatake, K. Osato, M. Shirasaki, *Baryon Pasting the Uchuu Lightcone Simulation*, submitted to ApJ *(astro-ph/2411.00108)*

173. E. Lau, A. Bogdan, **D. Nagai**, N. Cappelluti, M. Shirasaki, *Cosmology & Astrophysics with the Diffuse eRASS1 X-ray Angular Power Spectrum*, submitted to ApJ *(astro-ph/2410.22397)*

172. I. Medlock, C. Neufeld, **D. Nagai**, D. Anglés-Alcázar, S. Genel, B. D. Oppenheimer, P. Singh, F. Villaescusa-Navarro, *Quantifying Baryonic Feedback on Warm-Hot Circumgalactic Medium in CAMELS Simulations*, submitted to ApJ *(astro-ph/2410.16361)*

171. N. M. Luber, F. Hasan, J. H. van Gorkom, D. J. Pisano, J. N. Burchett, J. B. Bird, H. B. Gim, K. M. Hess, L. R. Hunt, D. C. Koo, S. Kurapati, D. Lucero, N. Mandelker, E. Momjian, **D. Nagai**, J. Primack, M. S. Yun, *CHILES IX: The HI Content and Star Formation of Blue Galaxies in Different Cosmic Web Environments in CHILES and TNG simulations*, submitted to ApJ

170. C. Tian, C. M. Urry, A. Ghosh, **D. Nagai**, T. T. Ananna, M. C. Powell, C. Auge, A. Mishra, D. B. Sanders, N. Cappelluti, K. Schawinski, *Automatic Machine Learning Framework to Study Morphological Parameters of AGN Host Galaxies within $z < 1.4$ in the Hyper Supreme-Cam Wide Survey*, submitted to ApJ

169. M. C. Wilde, O. Elek, J. N. Burchett, **D. Nagai**, J. X. Prochaska, J. Werk, S. Tuttle, A. G. Forbes, *SDSS DR17: The Cosmic Slime Value Added Catalog*, submitted to ApJS *(astro-ph/2301.02719)*

168. A.-R. Pop, L. Hernquist, **D. Nagai**, R. Kannan, R. Weinberger, V. Springel, M. Vogelsberger, D. Nelson, R. Pakmor, P. Torrey, *Unifying Sunyaev-Zel'dovich and X-ray predictions from clusters to galaxy groups: the impact of X-ray mass estimates on the $Y - M$ scaling relation*, submitted to MNRAS *(astro-ph/2205.11537)*

167. A.-R. Pop, L. Hernquist, **D. Nagai**, R. Kannan, R. Weinberger, V. Springel, M. Vogelsberger, D. Nelson, R. Pakmor, A. Pillepich, P. Torrey, *Sunyaev-Zel'dovich and X-ray scaling relations of galaxies, groups and clusters in the IllustrisTNG simulations*, submitted to MNRAS *(astro-ph/2205.11528)*

Refereed Journal Articles: Published

166. M. Shirasaki, C. Sifón, H. Miyatake, E. Lau, Z. Zhang, N. Bahcall, N. Battaglia, M. Devlin, J. Dunkley, A. Farahi, M. Hilton, Y-T Lin, **D. Nagai**, S. T. Staggs, T. Sunayama, D. Spergel, E. J. Wollack, *Masses of Sunyaev–Zel'dovich effect Galaxy Clusters Detected by The Atacama Cosmology Telescope: Stacked Lensing Measurements with Subaru HSC Year 3 data*, 2024, Phys. Rev. D, 110, 103006

165. A. Ghosh, C. M. Urry, M. C. Powell, R. Shimakawa, F. van den Bosch, **D. Nagai**, K. Mitra, A. J. Connoly, *Denser Environments Cultivate Larger Galaxies: A Comprehensive Study Beyond the Local Universe with 3 Million Hyper Suprime-Cam Galaxies*, 2024, ApJ, 971, 142

164. F. Hasan, J. N. Burchett, D. Hellinger, O. Elek, **D. Nagai**, J. Primack, S. Faber, D. Koo, N. Mandelker, J. Woo, *Filaments of the Slime Mold Cosmic Web and How They Affect Galaxy Evolution*, 2024, ApJ, 970, 177

163. P. Singh, E. Lau, Y. Faerman, J. Stern, **D. Nagai**, *Comparison of Models for the Warm-Hot Circumgalactic Medium around Milky Way-like Galaxies*, 2024, MNRAS, 532, 3222

162. H. Aung, N. Mandelker, A. Dekel, **D. Nagai**, V. Semenov, F. C. van den Bosch, *Entrainment of Hot Gas into Cold Streams: The Origin of Excessive Star-formation Rate at Cosmic Noon*, 2024, MNRAS, 532, 2965

161. G. Schellenberger, A. Bogdan, J. ZuHone, B. D. Oppenheimer, N. Truong, I. Khabibullin, F. Jennings, A. Pillepich, J. N. Burchett, C. Carr, R. Crain, C. Kilbourne, R. P. Kraft, M. Markevitch, **D. Nagai**, D. Nelson, A. M. Ogorzalek, A. Sarkar, S. Veilleux, M. Vogelsberger, I. Zhuravleva, *Mapping the Imprints*

of Stellar and AGN feedback in the Circumgalactic Medium with X-ray Microcalorimeters, 2024, ApJ, 969, 84

160. E. M. Silich, E. Bellomi, J. Sayers, J. ZuHone, M. Brodwin, U. Chadayammuri, S. Golwala, D. Hughes, A. Montana, T. Mroczkowski, **D. Nagai**, D. Sanchez, S. A. Stanford, G. Wilson, M. Zemcov, A. Zitrin, *ICM-SHOX. Paper I: Methodology overview and discovery of a baryon–dark matter velocity decoupling in the MACS J0018.5+1626 merger*, 2024, ApJ, 968, 74

159. M. E. Lee, S. Genel, B. D. Wandelt, B. Zhang, A. M. Delgado, S. Pandey, E. Lau, C. Carr, H. Cook, **D. Nagai**, D. Anglés-Alcázar, F. Villaescusa-Navarro, G. L. Bryan, *Zooming by in the CARPool(GP) lane: new CAMELS-TNG simulations of zoomed-in massive halos*, 2024, ApJ, 968, 11

158. W. Lee, A. Pillepich, J. ZuHone, D. Nelson. M. J. Jee, **D. Nagai**, K. Finner, *Radio Relics in the Massive Galaxy Cluster Mergers in the TNG-Cluster simulation*, 2024, A&A, 686, 55

157. I. Medlock, **D. Nagai**, P. Singh, B. Oppenheimer, F. Villaescusa-Navarro, D. Anglés-Alcázar, *Probing the Circum-Galactic Medium with Fast Radio Bursts: Insights from the CAMELS simulations*, 2024, ApJ, 967, 32

156. C. Zhang, I. Zhuravleva, M. Markevitch, J. ZuHone, A. Bogdan, P. Chakraborty, E. Churazov, K. Dolag, S. Ettori, W. Forman, C. Jones, I. Khabibullin, C. Klbourne, R. Kraft, E. Lau, S.-C. Lin, F. Mernier, **D. Nagai**, D. Nelson, A. Ogorzalek, E. Rasia, A. Sarkar, A. Simionescu, Y. Su, M. Vogelsberger, S. Walker, *Mapping Intracluster Medium in the Era of High-resolution X-ray Spectroscopy*, 2024, MNRAS, 530, 4234

155. Z. Zheng, A. Farahi, **D. Nagai**, E. Lau, J. Freeman, M. Ricci, A. von der Linden, H.-Y. Wu, A. Hearin, H. Kelly, J. Esteves, E. Xhakaj, C. Zhou, and the LSST Dark Energy Science Collaboration, *Impact of Property Covariance on Cluster Weak Lensing Scaling Relations*, 2024, MNRAS, 530, 3127

154. M. Gebhardt, D. Anglés-Alcázar, J. Borrow, S. Genel, F. Villaescusa-Navarro, Y. Ni, C. Lovell, **D. Nagai**, R. Davé, F. Marinacci, M. Vogelsberger, L. Hernquist, *Cosmological Baryon Spread and Impact on Matter Clustering in CAMELS*, 2024, MNRAS, 529, 4896

153. Y. S. Lu, N. Mandelker, S. P. Oh, A. Dekel, F. C. van den Bosch, V. Springel, **D. Nagai**, F. van de Voort, *The Structure and Dynamics of Massive High-z Cosmic-Web Filaments: Three Radial Zones in Filament Cross-Sections*, 2024, MNRAS, 527, 11256

152. N. Gluck, B. D. Oppenheimer, **D. Nagai**, F. Villaescusa-Navarro, D. Anglés-Alcázar, *An Observationally Driven Multifield Approach for Probing the Circum-Galactic Medium with Convolutional Neural Networks*, 2024, MNRAS, 527, 10038

151. G. Ogiya, **D. Nagai**, *Formation of Dense Filament by Runaway Supermassive Black Holes*, 2024, MNRAS, 527, 5503

150. D. Stevanovich, A. Hearin, **D. Nagai**, *A Differentiable Model of Concentration Evolution for Dark Matter Halos*, 2023, MNRAS, 526, 1528

149. D. Farid, H. Aung, **D. Nagai**, A. Farahi, E. Rozo, *C2-GaMe: Classification of Galaxy Cluster Membership with Machine Learning*, 2023, Astronomy & Computing, 45, 100743

148. A. Ghosh, C. M. Urry, A. Mishra, L. Perreault-Levasseur, P. Natarajan, D. B. Sanders, **D. Nagai**, C. Tian, N. Cappelluti, J. S. Kartaltepe, M. C. Powell, A. Rau, E. Treister, *Morphological Parameters and Associated Uncertainties for 8 million Galaxies in the Hyper Suprime-Cam Wide Survey*, 2023, ApJ, 953, 134

147. A. Bogdan, I. Khabibullin, O. E. Kovács, G. Schellenberger, J. ZuHone, J. N. Burchett, K. Dolag, E. Churazov, W. R. Forman, C. Jones, C. Kilbourne, R. P. Kraft, E. Lau, M. Markevitch, D. McCammon,

D. Nagai, D. Nelson, A. M. Ogorzalek, B. D. Oppenheimer, Y. Su, N. Truong, S. Veilleux, S. Vladutescu-Zopp, I. Zhuravleva, *Circumgalactic Medium on the Largest Scales: Detecting X-ray Absorption Lines with Large-area Microcalorimeters*, 2023, ApJ, 953, 42

146. F. Hasan, J. N. Burchett, A. Abeyta, D. Hellinger, N. Mandelker, J. Primack, S. Faber, D. Koo, O. Elek, **D. Nagai**, *The Evolving Effect Of Cosmic Web Environment On Galaxy Quenching*, 2023, ApJ, 950, 114

145. M. Ho, J. Soltis, A. Farahi, **D. Nagai**, A. Evrard, M. Ntampaka, *Benchmarks and Explanations for Deep Learning Estimates of X-ray Galaxy Cluster Masses*, 2023, 524, 3289

144. J. Wadekar, L. Thiele, J. C. Hill, S. Pandey, F. Villaescusa-Navarro, D. N. Spergel, M. Cranmer, **D. Nagai**, D. Anglés-Alcázar, S. Ho, L. Hernquist, *The SZ flux–mass (Y -M) relation at low halo masses: improvements with symbolic regression*, 2023, MNRAS, 522, 2628

143. P. van Dokkum, I. Pasha, M. L. Buzzo, S. LaMassa, Z. Shen, M. Keim, R. Abraham, C. Conroy, S. Danieli, **D. Nagai**, P. Natarajan, A. Romanowsky, G. Tremblay, C. M. Urry, F. van den Bosch, *A candidate runaway supermassive black hole identified by its 62 kpc long wake of shocks and star formation*, 2023, ApJ, 946, 50

142. F. Villaescusa-Navarro, S. Genel, D. Anglés-Alcázar, L. A. Perez, P. Villanueva-Domingo, D. Wadekar, H. Shao, F. G. Mohammad, S. Hassan, E. Moser, E. T.. Lau, L. F. Machado Poletti Valle, A. Nicola, L. Thiele, Y. Jo, O. H. E. Philcox, B. D. Oppenheimer, M. Tillman, C. Hahn, N. Kaushal, A. Pisani, M. Gebhardt, A. M. Delgado, J. Caliendo, C. Kreisch, K. W. K. Wong, W. R. Coulton, M. Eickenberg, G. Parimbelli, Y. Ni, U. Steinwandel, V. La Torre, R. Dave, N. Battaglia, **D. Nagai**, D. N. Spergel, L. Hernquist, B. Burkhart, D. Narayanan, B. Wandelt, R. S. Somerville, G. L. Bryan, M.Viel, Y. Li, V. Irsic, K. Kraljic, M. Vogelsberger, *The CAMELS Project: Public Data Release*, 2023, ApJS, 265, 54

141. H. Aung, **D. Nagai**, E. Rozo, B. Wolfe, S. Adhikari, *Accurate Model of the Projected Velocity Distribution of Galaxies in Dark Matter Halos*, 2023, MNRAS, 521, 3981

140. R. Garcia, E. Salazar, E. Rozo, S. Adhikari, H. Aung, B. Diemer, **D. Nagai**, B. Wolfe, *A Better Way to Define Dark Matter Haloes*, 2023, MNRAS, 521, 2464

139. I. Zhuravleva, M. C. Chen, E. Churazov, A. Schekochihin, C. Zhang, **D. Nagai**, *Indirect Measurements of Gas Velocities in Galaxy Clusters: Effects of Ellipticity and Cluster Dynamic State*, 2023, MNRAS, 520, 5157

138. W. Lee, S. Cha, J. Jee, **D. Nagai**, L. King, J. ZuHone, U. Chadayammuri, S. Felix, K. Finner, *Lensing Mass Bias in Merging Galaxy Clusters*, 2023, ApJ, 945, 71

137. A. Butler, E. Lau, B. Oppenheimer, A. Bogdan, M. Tillman, **D. Nagai**, O. E. Kovács, B. Burkhart, *X-ray Absorption Lines in the Warm-Hot Intergalactic Medium: Probing Chandra observations with the CAMEL simulations*, 2023, MNRAS, 519, 2251

136. K. Osato, **D. Nagai**, *Baryon Pasting Algorithm: Halo-based and Particle-based Pasting Methods*, 2022, MNRAS, 519, 2069

135. H. Aung, **D. Nagai**, A. Klypin, P. Behroozi, M. H. Abdullah, T. Ishiyama, F. Prada, E. Pérez, J. Cacheiro, José Ruedas, *The Uchuu+UniverseMachine Dataset: Galaxies in and around Clusters*, 2023, MNRAS, 519, 1648

134. E. Lau, A. Bogdan, M. Chadayammuri, **D. Nagai**, R. Kraft, N. Cappelluti, *The X-ray Angular Power Spectrum of the Extended Sources in the eROSITA Final Equatorial Depth Survey*, 2023, MNRAS, 518, 1496

133. J. Soltis, M. Ntampaka, J. Wu, J. ZuHone, A. Evrard, A. Farahi, M. Ho, **D. Nagai**, *A Machine Learning Approach to Enhancing eROSITA Observations*, 2022, MNRAS, 940, 60

132. E. Lee, D. Anbajagane, P. Singh, J. Chluba, **D. Nagai**, S. Kay, W. Cui, K. Dolag, G, Yepes, et al., *A Multi-Simulation Study of Relativistic SZ Temperature Scalings in Galaxy Clusters and Groups*, 2022, MNRAS, 517, 5303

131. A. Farahi, **D. Nagai**, D. Anbajagane, *Correlations of Dark Matter, Gas and Stellar Profiles in Dark Matter Halos*, 2022, ApJ, 933, 48

130. E. Moser, N. Battaglia, **D. Nagai**, E. Lau, L. F. Machado Poletti Valle, F. Villaescusa-Navarro, S. Amodeo, D. Anglés-Alcázar, G. Bryan, R. Dave, L. Hernquist, M. Vogelsberger, *The Circumgalactic Medium with the CAMELS Simulations: Forecasting Constraints on Feedback Processes from Future Sunyaev-Zeldovich Observations*, 2022, ApJ, 933, 133

129. P. van Dokkum, Z. Shen, M. Keim, S. Trujillo-Gomez, S. Danieli, D. D. Chowdhury, R. Abraham, C. Conroy, J. M. D. Kruijssen, **D. Nagai**, A. Romanowsky, *A Trail of Dark Matter-Free Galaxies from a Bullet Dwarf Collision*, 2022, Nature, 605, 435

128. G. Ogiya, **D. Nagai**, *Dark Matter Cores in Massive High-Redshift Galaxies Formed by Baryonic Clumps*, 2022, MNRAS, 514, 555

127. A. Nicola, F. Villaescusa-Navarro, D. N. Spergel, J. Dunkley, D. Anglés-Alcázar, R. Dave, S. Genel, L. Hernquist, **D. Nagai**, R. S. Somerville, B. Wandelt, *Breaking Baryon-Cosmology Degeneracy with the Electron Density Power Spectrum*, 2022, JCAP, 04, 046

126. F. Villaescusa-Navarro, J. Ding, S. Genel, S. Tonnesen, V. La Torre, D. N. Spergel, R. Teyssier, Y. Li, C. Heneka, P. Lemos, D. Anglés-Alcázar, **D. Nagai**, M. Vogelsberger, *Cosmology with One Galaxy?*, 2022, ApJ, 929, 132

125. T. Rothschild, **D. Nagai**, H. Aung, S. Green, M. Ntampaka, J. ZuHone, *Emulating Sunyaev-Zeldovich Effect Images of Galaxy Clusters with Auto-Encoders*, 2022, MNRAS, 513, 333

124. F. Villaescusa-Navarro, S. Genel, D. Anglés-Alcázar, L. Thiele, R. Dave, D. Narayanan, A. Nicola, Y. Li, P. Villanueva-Domingo, B. Wandelt, D. N. Spergel, R. S. Somerville, J. M. Zorrilla Matilla, F. G. Mohammad, S. Hassan, H. Shao, D. Wadekar, M. Eickenberg, K. W. K. Wong, G. Contardo, Y. Jo, E. Moser, E. T. Lau, L. F. Machado Poletti Valle, L. A. Perez, **D. Nagai**, N. Battaglia, M. Vogelsberger, *The CAMELS Multifield Dataset: Learning the Universe's Parameters with Artificial Intelligence*, 2022, ApJS, 259, 61

123. U. Chadayammuri, J. ZuHone, P. E. J. Nulsen, **D. Nagai**, H. Russell, *Turbulent Magnetic Field in Merging Galaxy Clusters: A case study of Abell 2146*, 2022, 512, 2157

122. S. Raghunathan, N. Whitehorn, M. A. Alvarez, H. Aung, N. Battaglia, G. P. Holder, **D. Nagai**, E. Pierpaoli, C. L. Reichardt, J. D. Vieira, *Constraining Cluster Virialization Mechanism and Cosmology using Thermal-SZ-selected clusters from Future CMB Surveys*, 2022, ApJ, 926, 172

121. J. D. van Nest, F. Munshi, A. Wright, M. Tremmel, A. Brooks, **D. Nagai**, T. Quinn, *What's in a name? Quantifying the interplay between definition, orientation and shape of UDGs using the Romulus Simulations*, 2022, MNRAS, ApJ, 926, 92

120. D. Anbajagane, H. Aung, A. Evrard, A. Farahi, **D. Nagai**, D. Barnes, W. Cui, K. Dolag, I. G. McCarthy, E. Rasia, G. Yepes, *Galaxy Velocity Bias in Cosmological Simulations: Towards Percent-level Calibration*, 2022, MNRAS, 510, 2980

119. U. Chadayammuri, J. ZuHone, P. E. J. Nulsen, **D. Nagai**, S. Felix, F. Andrade-Santos, L. King, H. Russell, *Constraining Merging Galaxy Clusters with X-ray and Lensing Simulations & Observations: The case of Abell 2146*, 2022, MNRAS, 509, 1201

118. N. Mandelker, F. van den Bosch, V. Springel, F. van de Voort, J. N. Burchett, I. S. Butsky, **D. Nagai**, S. P. Oh, *Thermal Instabilities and Shattering in the High-Redshift WHIM: Convergence Criteria and Implications for Low-Metallicity Strong HI Absorbers*, 2021, ApJ, 923, 115

117. H. Aung, **D. Nagai**, E. Lau, *Shock and Splash: Gas and Dark Matter Halo Boundaries of Galaxy Clusters*, 2021, MNRAS, 508, 2071

116. L. F. Machado P. V., C. Avestruz, D. Barnes, A. Farahi, E. Lau, **D. Nagai**, *SHAPing the Gas: Understanding the Gas Shapes in Massive Dark Matter Halos with Interpretable Machine Learning*, 2021, MNRAS, 507, 1468

115. U. Chadayammuri, M. Tremmel, **D. Nagai**, A. Babul, T. R. Quinn, *Fountains and Storms: The Effects of AGN and Mergers on the Evolution of the Intracluster Medium in the RomulusC Simulation*, 2021, MNRAS, 504, 3922

114. E. L. Wagoner, E. Rozo, H. Aung, **D. Nagai**, *Measuring Cosmological Distances using Cluster Edges as a Standard Ruler*, 2021, MNRAS, 504, 1619

113. A. Wright, M. Tremmel, A. Brooks, F. Munshi, **D. Nagai**, R. S. Sharma, T. Quinn, *The Formation of Isolated Ultra-Diffuse Galaxies in Romulus25*, 2021, MNRAS, 502, 5370

112. H. Aung, **D. Nagai**, E. Rozo, R. Garcia, *The Phase Space Structure of Dark Matter Halos*, 2021, MNRAS, 502, 1041

111. J. Comparat, D. Eckert, A. Finoguenov, R. Schmidt, J. Sanders, **D. Nagai**, E. Lau, F. Kaefer, F. Pacaud, N. Clerc, T. H. Reiprich, E. Bulbul, J. I. Chitham, C-H. Chuang, V. Ghirardini, V. Gonzalez-Perez, G. Gozaliazl, C. Kirkpatrick, A. Klypin, A. Merloni, K. Nandra, T. Liu, F. Prada, J. E. Ramos-Ceja, M. Salvato, R. Seppi, E. Tempel, G. Yepes, *Full-sky photon simulation of clusters and active galactic nuclei in the soft X-rays for eROSITA*, 2020, OJAp, 3, 13

110. A. Farahi, **D. Nagai**, C. Yang, *PoPE: A population-based approach to model the spatial structure of astronomical systems*, 2020, AJ, 161, 30

109. E. Lau, A. Hearin, **D. Nagai**, N. Cappelluti, *Correlation between Triaxial Shape and Formation History of Dark Matter Halos*, 2020, MNRAS, 500, 1029

108. P. Tomooka, E. Rozo, E. Wagoner, H. Aung, **D. Nagai**, S. Safonova, *Clusters Have Edges: The Projected Phase Space Structure of SDSS redMaPPer Clusters*, 2020, MNRAS, 499, 1291

107. N. Mandelker, F. van den Bosch, **D. Nagai**, A. Dekel, Y. Birnboim, H. Aung, *Kelvin Helmholtz Instabilities in Cold Streams as a Mechanism for Powering Ly-α Blobs*, 2020, MNRAS, 498, 2415

106. M. Tremmel, A. Wright, A. M. Brooks, F. Munshi, **D. Nagai**, T. Quinn, *The Formation of Ultra-Diffuse Galaxies in the RomulusC Galaxy Cluster Simulation*, 2020, MNRAS, 497, 2786

105. S. Green, H. Aung, **D. Nagai**, F. van den Bosch, *Scatter in Sunyaev-Zel'dovich effect scaling relations explained by inter-cluster variance in mass accretion histories*, 2020, MNRAS, 496, 2743

104. X. Shi, **D. Nagai**, H. Aung, A. Wetzel, *Dynamical Heating of the X-ray emitting Intracluster Medium: the Roles of Merger Shocks and Turbulence Dissipation*, 2020, MNRAS, 495, 784

103. N. Mandelker, **D. Nagai**, H. Aung, A. Dekel, Y. Birnboim, F. van den Bosch, *Instability of Supersonic Cold Streams Feeding Galaxies IV: Survival of Radiatively Cooling Streams*, 2020, MNRAS, 494, 2641

102. S. Starikova, A. Vikhlinin, A. Kravtsov, R. Kraft, T. Connor, J. Mulchaey, **D. Nagai**, *Stellar mass measurements in Abell 133 with Magellan/IMACS*, 2020, MNRAS, 892, 34

101. K. Osato, M. Shirasaki, H. Miyatake, **D. Nagai**, N. Yoshida, M. Oguri, R. Takahashi, *Cross-correlation of the thermal Sunyaev–Zel'dovich effect and weak gravitational lensing with Planck and Subaru Hyper Suprime-Cam First-Year Data*, 2020, MNRAS, 492, 4780

100. M. Shirasaki, E. Lau, **D. Nagai**, *Probing Cosmology and Cluster Astrophysics with Multi-Wavelength Surveys I: Correlation Statistics*, 2020, MNRAS, 491, 235

99. I. Butsky, J. Burchett, **D. Nagai**, M. Tremmel, T. Quinn, J. Werk, *Ultraviolet Signatures of the Multiphase Intracluster and Circumgalactic Media in the RomulusC Simulation*, 2019, MNRAS, 490, 4292

98. H. Chen, C. Avestruz, A. Kravtsov, E. Lau, **D. Nagai**, *Imprints of Mass Accretion History on the Shape of the Intracluster Medium and the $T_X - M$ relation*, 2019, MNRAS, 490, 2380

97. S. Green, M. Ntampaka, **D. Nagai**, L. Lovisari, K. Dolag, D. Eckert, J. ZuHone, *Using X-ray Morphological Parameters to Strengthen X-ray Galaxy Cluster Mass Estimates via Machine Learning*, 2019, ApJ, 884, 33

96. H. Aung, N. Mandelker, **D. Nagai**, A. Dekel, Y. Birnboim, *Kelvin-Helmholtz Instability in Self-Gravitating Streams*, 2019, MNRAS, 490, 181

95. J. Pradeep, A. Narayanan, S. Muzahid, **D. Nagai**, J. C. Charlton, R. Srianand, *Ultraviolet Detection of Metal-Rich, Cool-Warm Gas in the Outskirts of Galaxy Clusters*, 2019, MNRAS, 488, 5327

94. J. Sayers, A. Montana, T. Mroczkowski, G. Wilson, M. Zemcov, A. Zitrin, N. Cibirka, S. Golwala, D. Hughes, **D. Nagai**, E. Reese, D. Sanchez, J. Zuhone, *Imaging the Thermal and Kinematic Sunyaev-Zel'dovich Effect Signals in a Sample of Ten Massive Galaxy Clusters: Constraints on Internal Velocity Structures and Bulk Velocities*, 2019, ApJ, 880, 45

93. M. Ntampaka, J. Zuhone, D. Eisenstein, **D. Nagai**, A. Vikhlinin, L. Hernquist, F. Marinacci, D. Nelson, R. Pakmor, A. Pillepich, P. Torrey, M. Vogelsberger, *A Deep Learning Approach to Galaxy Cluster X-ray Masses*, 2019, ApJ, 876, 82

92. X. Xu, J. Cisewski-Kahe, S. B. Green, **D. Nagai**, *Finding Cosmic Voids and Filament Loops Using Topological Data Analysis*, 2019, Astronomy & Computing, 27, 34

91. C. Ge, M. Sun, E. Rozo, N. Sehgal, A. Vikhlinin, W. Forman, C. Jones, **D. Nagai**, *X-ray scaling relations from a complete sample of the richest maxBCG clusters*, 2019, MNRAS, 484, 1946

90. N. Mandelker, **D. Nagai**, H. Aung, A. Dekel, D. Padnos, Y. Birnboim, *Instability of Supersonic Cold Streams Feeding Galaxies IV: Kelvin-Helmholtz Instability in Three Dimension*, 2019, MNRAS, 484, 1100

89. M. Tremmel, T. R. Quinn, A. Ricarte, A. Babul, M. Chadayammuri, P. Natarajan, **D. Nagai**, A. Pontzen, M. Volonteri, *Introducing RomulusC: A Cosmological Simulation of a Galaxy Cluster with Unprecedented Resolution*, 2019, MNRAS, 483, 3336

88. T. Connor, D. D. Kelson, J. Mulchaey, A. Vikhlinin, S. G. Patel, M. L. Balogh, G. Joshi, R. Kraft, **D. Nagai**, S. Starikova, *Wide-Field Optical Spectroscopy of Abell 133: A Search for Filaments Reported in X-ray Observations*, 2018, ApJ, 867, 25

87. X. Shi, **D. Nagai**, E. Lau, *Multi-Scale Analysis of Turbulence Evolution in the Density Stratified Intracluster Medium*, 2018, MNRAS, 481, 1075

86. N. Ota, **D. Nagai**, E. Lau, *Constraining Hydrostatic Mass Bias of Galaxy Clusters with High-Resolution X-ray Spectroscopy*, 2018, PASJ, 70, 51

85. M. Shirasaki, E. Lau, **D. Nagai**, *Modelling Baryonic Effects on Galaxy Cluster Mass Profiles*, 2018, MNRAS, 477, 2804

84. R. Massey, D. Harvey, J. Lisenborgs, J. Richard, S. Stach, M. Swinbank, P. Taylor, L. Williams, D. Clowe, F. Courbin, A. Edge, H. Israel, M. Jauzac, R. Joseph, E. Jullo, T. Kitching, A. Leonard, J. Merten, **D. Nagai**, J. Nightingale, A. Robertson, P. Saha, R. Smit, S. Tam, E. Tittley, *Dark matter dynamics in Abell 3827: new data consistent with standard Cold Dark Matter*, 2018, MNRAS, 477, 669

83. E. Zinger, A. Dekel, Y. Birnboim, **D. Nagai**, E. Lau, A. Kravtsov, *Cold fronts and Shocks Formed by Colliding Gas Streams in Galaxy Clusters*, 2018, MNRAS, 476, 56

82. E. Zinger, A. Dekel, A. Kravtsov, **D. Nagai**, *Quenching of Satellite Galaxies at the Outskirts of Galaxy Clusters*, 2018, MNRAS, 475, 3654

81. J. A. ZuHone, K. Kowalik, E. Ohman, E. Lau, **D. Nagai**, *The Galaxy Cluster Merger Catalog: An Online Repository of Mock Observations from Simulated Galaxy Cluster Mergers*, 2018, ApJS, 234, 4

80. K. Osato, S. Flender, **D. Nagai**, M. Shirasaki, N. Yoshida, *Investigating Cluster Astrophysics and Cosmology with Cross-correlation of the Thermal Sunyaev-Zel'dovich effect and Weak Lensing*, 2018, MNRAS, 475, 532

79. E. Lau, M. Gaspari, **D. Nagai**, P. Coppi, *Physical Origins of Gas Motions in Galaxy Cluster Cores: Interpreting the Hitomi Observations of the Perseus Cluster*, 2017, ApJ, 849, 54

78. S. Muzahid, J. Charlton, **D. Nagai**, J. Schaye, R. Srianand, *Discovery of an HI-rich Gas Reservoir in the Outskirts of Galaxy Clusters*, 2017, ApJL, 846, 8

77. A. Morandi, M. Sun, J. Mulchaey, **D. Nagai**, M. Bonamente, *Gas distribution and clumpiness in the galaxy group NGC2563*, 2017, MNRAS, 469, 2423

76. D. Nurgaliev, M. McDonald, B. A. Benson, L. Bleem, S. Bouquet, W. R. Forman, G. P. Gamier, N. Gupta, J. Hlavacek-Larrondo, J. Mohr, **D. Nagai**, D. Rapetti, A. A. Stark, C. W. Stubbs, A. Vikhlinin, *Testing for X-ray-SZ differences and Redshift Evolution in the X-ray Morphology of Galaxy Clusters*, 2017, ApJ, 841, 5

75. S. Flender, **D. Nagai**, M. McDonald, *Constraints on the Optical Depth of Galaxy Groups and Clusters*, 2017, ApJ, 837, 124

74. C. Avestruz, **D. Nagai**, E. Lau, *Stirred, not Clumped: Evolution of Temperature Profiles in the Outskirts of Galaxy Clusters*, 2016, ApJ, 833, 227

73. C. Tchernin, D. Eckert, S. Ettori, E. Pointecouteau, S. Palatani, S. Molendi, G. Hurier, F. Gastaldello, E. Lau, **D. Nagai**, M. Roncarelli, M. Rossetti, *The XMM Cluster Outskirts Project (X-COP): Physical conditions of Abell 2142 up to the virial radius*, 2016, A&A, 595, 42

72. G. Ogiya, **D. Nagai**, T. Ishiyama, *Dynamical Evolution of Primordial Dark Matter Haloes through Mergers*, 2016, MNRAS, 461, 3385

71. E. Zinger, A. Dekel, Y. Birnboim, A. Kravtsov, **D. Nagai**, *The Role of Penetrating Gas Streams in Setting the Dynamical State of Galaxy Clusters*, 2016, MNRAS, 461, 412

70. D. Waters, S.M. Wilkins, T. Di Matteo, Y. Feng, R. Croft, **D. Nagai**, *Monsters in the Dark: Predictions for Luminous Galaxies in the Early Universe from the BlueTides simulation*, 2016, MNRAS, 461, 51

69. M. Shirasaki, **D. Nagai**, E. Lau, *Covariance in the Thermal SZ-Weak Lensing Mass Scaling Relation of Galaxy Clusters*, 2016, MNRAS, 460, 3913

68. F. Sembolini, G. Yepes, F. R. Pearce, A. Knebe, S. T. Kay, C. Power, W. Cui, A. M. Beck, S. Borgani, C. D. Vecchia, R. Dave, P. J. Elahi, S. February, S. Huang, A. Hobbs, N. Katz, E. Lau, I. G. McCarthy, G. Murante, **D. Nagai**, K. Nelson, R. D. A. Newton, V. Perret, E. Puchwein, J. I. Read, A. Saro, J. Schaye,

R. Teyssier, R. J. Thacker, *nIFTy Galaxy Cluster simulations I: dark matter & non-radiative models*, 2016, MNRAS, 457, 4063

67. X. Shi, E. Komatsu, **D. Nagai**, E. Lau, *Analytical model for non-thermal pressure in galaxy clusters III. Removing the Hydrostatic Mass Bias*, 2016, MNRAS, 455, 2936

66. C. Avestruz, **D. Nagai**, E. Lau, K. Nelson, *Non-Equilibrium Electrons on the Outskirts of Galaxy Clusters*, 2015, ApJ, 808, 176

65. A. Wetzel and **D. Nagai**, *The Physical Nature of Cosmic Accretion of Baryons and Dark Matter into Halos and Their Galaxies*, 2015, ApJ, 808, 40

64. L. Yu, K. Nelson, **D. Nagai**, *The Influence of Mergers on Scatter and Evolution in Sunyaev-Zel'dovich Effect Scaling Relations*, 2015, ApJ, 807, 12

63. E. Lau, **D. Nagai**, C. Avestruz, K. Nelson, A. Vikhlinin, *Mass Accretion and its Effects on the Self-Similarity of Gas Profiles in the Outskirts of Galaxy Clusters*, 2015, ApJ, 806, 68

62. R. Massey, L. Williams, R. Smit, M. Swinbank, T. Kitching, D. Harvey, M. Jauzac, H. Israel, D. Clowe, A. Edge, M. Hilton, E. Jullo, A. Leonard, J. Lisenborgs, J. Merten, I. Mohammed, **D. Nagai**, J. Richard, A. Robertson, P. Saha, R. Santana, J. Stott, E. Tittley, *The Behavior of Dark Matter associated with 4 Bright Cluster Galaxies in the 10kpc core of Abell 3827*, 2015, MNRAS, 449, 3393

61. X. Shi, E. Komatsu, K. Nelson, **D. Nagai**, *Analytical model for non-thermal pressure in galaxy clusters II: Comparison with cosmological hydrodynamics simulation*, 2015, MNRAS, 448, 1020

60. K. Nelson, E. Lau, **D. Nagai**, *Hydrodynamic Simulation of Non-thermal Pressure Profiles of Galaxy Clusters*, 2014, ApJ, 792, 25

59. C. Avestruz, E. Lau, **D. Nagai**, A. Vikhlinin, *Testing X-ray Measurements of Galaxy Cluster Outskirts with Cosmological Simulations*, 2014, ApJ, 791, 117

58. E. Rasia, E. Lau, S. Borgani, **D. Nagai**, K. Dolag, C. Avestruz, G. Granato, P. Mazzotta, G. Murante, K. Nelson, C. Rangone-Figueroa, *Temperature Structure of the Intracluster Medium from SPH and AMR Simulations*, 2014, ApJ, 791, 96

57. M. Gaspari, E. Churazov, **D. Nagai**, E. Lau, I. Zhuravleva, *The relation between gas density and velocity power spectra in galaxy clusters: hydrodynamic simulations and the role of conduction*, 2014, A&A, 569, 67

56. I. Zhuravleva, E. Churazov, A. Schekochihin, E. Lau, **D. Nagai**, M. Gaspari, S. Allen, K. Nelson, I. Parrish, *The relation between gas density and velocity power spectra in galaxy clusters: qualitative treatment and cosmological simulations*, 2014, ApJL, 788, 13

55. A. van Engelen, S. Bhattacharya, N. Sehgal, G. Holder, O. Zahn, **D. Nagai**, *CMB Lensing Power Spectrum Biases from Galaxies and Clusters using High-angular Resolution Temperature Maps*, 2014, ApJ, 786, 13

54. D. Harvey, E. Tittley, R. Massey, T. Kitching, A. Taylor, S. Pike, S. Kay, E. Lau, **D. Nagai**, *On the cross-section of Dark Matter using substructure infall into galaxy clusters*, 2014, MNRAS, 441, 404

53. K. Nelson, E. Lau, **D. Nagai**, D. Rudd, L. Yu, *Weighing Galaxy Clusters with Gas. II. On the Origin of Hydrostatic Mass Bias in ΛCDM Galaxy Clusters*, 2014, ApJ, 782, 107

52. E. Lau, **D. Nagai**, K. Nelson, *Weighing Galaxy Clusters with Gas. I. On the Methods of Computing the Hydrostatic Mass Bias*, 2013, ApJ, 777, 151

51. **D. Nagai**, E. Lau, C. Avestruz, K. Nelson, D. Rudd, *Predicting Merger-Induced Gas Motions in ΛCDM Galaxy Clusters*, 2013, ApJ, 777 137

50. A. Morandi, **D. Nagai**, W. Cui, *Non-parametric method for measuring gas inhomogeneities from X-ray observations of galaxy clusters*, 2013, MNRAS, 436, 1123

49. A. Morandi, **D. Nagai**, W. Cui, *Reconstructing three-dimensional parameters of galaxy clusters via multifrequency SZ observations*, 2013, MNRAS, 431, 1240

48. S. Khedekar, E. Churazov, A. Kravtsov, I. Zhuravleva, E. Lau, **D. Nagai**, R. Sunyaev, *Bias from gas inhomogeneities in the pressure profiles as measured from X-ray and SZ observations*, 2013, MNRAS, 431, 954

47. J. Chluba, E. Switzer, K. Nelson, **D. Nagai**, *Sunyaev-Zeldovich signal processing and temperature-velocity moment method for individual clusters*, 2013, MNRAS, 430, 3054

46. I. Zhuravleva, E. Churazov, A. Kravtsov, E. Lau, **D. Nagai**, R. Sunyaev, *Quantifying Properties of ICM Inhomogeneities*, 2013, MNRAS, 428, 3274

45. S. Bhattacharya, **D. Nagai**, L. Shaw, T. Crawford, G. Holder, *Bispectrum of Sunyaev-Zeldovich Effect*, 2012, ApJ, 760, 5

44. J. Chluba, **D. Nagai**, S. Sazonov, K. Nelson, *A Fast and Accurate Method for Computing the Sunyaev-Zeldovich signals for Hot Galaxy Clusters*, 2012, MNRAS, 426, 510

43. L. Shaw, D. Rudd, **D. Nagai**, *Deconstructing the kinetic SZ power spectrum*, 2012, ApJ, 756, 15

42. E. Lau, **D. Nagai**, A. Kravtsov, A. Vikhlinin, A. Zentner, *Constraining Cluster Physics with the Shape of X-ray Clusters: Comparison of Local X-ray Clusters vs. ΛCDM Clusters*, 2012, ApJ, 755, 116

41. J. Richardson, Z. Zheng, S. Chatterjee, **D. Nagai**, Y. Shen, *The Halo Occupation Distribution of SDSS Quasars*, 2012, ApJ, 755, 30

40. S. Ando and **D. Nagai**, *Fermi-LAT Constraints on Dark Matter Annihilation Cross Section from Observations of the Fornax Cluster*, 2012, JCAP, 07, 017

39. K. Nelson, D. Rudd, L. Shaw, **D. Nagai**, *Evolution of the Merger Induced Hydrostatic Mass Bias in Galaxy Clusters*, 2012, ApJ, 751, 121

38. D. Eckert, F. Vazza, S. Ettori, S. Molendi, **D. Nagai**, E. Lau, M. Roncarelli, M. Rossetti, S. L. Snowden, F. Gastaldello, *The gas distribution in galaxy cluster outer regions*, 2012, A&A, 541, 57

37. S. Chatterjee, C. Degraf, J. Richardson, Z. Zheng, **D. Nagai**, T. DiMatteo, *The Halo Occupation Distribution of Active Galactic Nuclei*, 2012, MNRAS, 419, 2657

36. C. Degraf, M. Oborski, T. Di Matteo, S. Chatterjee, **D. Nagai**, J. Richardson, Z. Zheng, *The Halo Occupation Distribution of Black Holes*, 2011, MNRAS, 416, 1591

35. E. Lau, **D. Nagai**, A. Kravtsov, A. Zentner, *Shapes of Gas, Gravitational Potential and Dark Matter in ΛCDM Clusters*, 2011, ApJ, 734, 93

34. **D. Nagai** and E. Lau, *Gas Clumping in the Outskirts of ΛCDM Clusters*, 2011, ApJ, 731, L10

33. R. Massey, T. Kitching, **D. Nagai**, *Cluster Bulleticity*, 2010, MNRAS, 413, 1709

32. L. Shaw, **D. Nagai**, S. Bhattacharya, E. Lau, *Impact of Cluster Physics on the Sunyaev-Zel'dovich Power Spectrum*, 2010, ApJ, 725, 1452

31. E. Lau, **D. Nagai**, A. Kravtsov, *Effects of Baryon Dissipation on the Dark Matter Virial Scaling Relation*, 2010, ApJ, 708, 1419

30. E. Lau, A. V. Kravtsov, **D. Nagai**, *Residual Gas Motions in the Intracluster Medium and Bias in Hydrostatic Measurements of Mass Profiles of Clusters*, 2009, ApJ, 705, 1129

29. F. Peng and **D. Nagai**, *Helium Sedimentation and the UV-upturn in Brightest Central Galaxies*, 2009, ApJ, 705, L58

28. D. H. Rudd and **D. Nagai**, *Non-Equilibrium Electrons and the Sunyaev-Zel'dovich Effect of Galaxy Clusters*, 2009, ApJ, 701, L16

27. T. Mroczkowski, M. Bonamente, J. E. Carlstrom, T. L. Culverhouse, C. Greer, D. Hawkins, R. Hennessy, M. Joy, J. W. Lamb, E. M. Leitch, M. Loh, B. Maughan, D. P. Marrone, A. Miller, S. Muchovej, **D. Nagai**, C. Pryke, M. Sharp, D. Woody, *Application of a Self-Similar Pressure Profile to Sunyaev-Zel'dovich Effect Data from Galaxy Clusters*, 2009, ApJ, 694, 1034

26. F. Peng and **D. Nagai**, *Effect of Helium Sedimentation on X-ray Measurements of Galaxy Clusters*, 2009, ApJ, 693, 839

25. A. Vikhlinin, A. V. Kravtsov, R. A. Burenin, H. Ebeling, W. R. Forman, A. Hornstrup, C. Jones, S. S. Murray, **D. Nagai**, H. Quintana, A. Voevodkin, *Chandra Cluster Cosmology Project III: Cosmological Parameter Constraints*, 2009, ApJ, 692, 1060

24. A. Vikhlinin, R. A. Burenin, H. Ebeling, W. R. Forman, A. Hornstrup, C. Jones, A. V. Kravtsov, S. S. Murray, **D. Nagai**, H. Quintana, A. Voevodkin, *Chandra Cluster Cosmology Project II: Samples and X-ray Data Reduction*, 2009, ApJ, 692, 1033

23. E. Rozo, **D. Nagai**, C. Keeton, A. V. Kravtsov, *The Impact of Baryonic Cooling on Giant Arc Abundances*, 2008, ApJ, 687, 22

22. S. Ando and **D. Nagai**, *Gamma-ray Probe of Cosmic-Ray Pressure in Galaxy Clusters and Cosmological Implications*, 2008, MNRAS, 385, 2243

21. U. Nakar, M. Milosavljevic, **D. Nagai**, *Cluster Merger Shock Constraints on Particle Acceleration and Nonthermal Pressure in the Intracluster Medium*, 2008, ApJ, 675, 126

20. M. Bonamente, M. K. Joy, S. J. LaRoque, J. E. Carlstrom, **D. Nagai**, D. Marrone, *Scaling Relations of Sunyaev-Zel'dovich Effect and Chandra X-ray measurements of high-redshift galaxy clusters*, 2008, ApJ, 675, 106

19. **D. Nagai**, A. V. Kravtsov, A. Vikhlinin, *Effects of Galaxy Formation on Thermodynamics of the Intracluster Medium*, 2007, ApJ, 668, 1

18. M. Milosavljevic, J. Koda, **D. Nagai**, U. Nakar, P. R. Shapiro, *The Cluster-Merger Shock in 1E 0657-56: Faster than the Speeding Bullet?*, 2007, ApJL, 661, 131

17. N. Afshordi, Y.-T. Lin, **D. Nagai**, A. J. R. Sanderson, *Missing Thermal Energy of the Intracluster Medium*, 2007, MNRAS, 378, 293

16. **D. Nagai**, A. Vikhlinin, A. V. Kravtsov, *Testing X-ray Measurements of Galaxy Clusters with Cosmological Simulations*, 2007, ApJ, 655, 98

15. L. Benatov, K. Rines, P. Natarajan, A. V. Kravtsov, **D. Nagai**, *Galaxy orbits and the intra-cluster gas temperature in clusters*, 2006, MNRAS, 370, 427

14. S. J. LaRoque, M. Bonamente, J. E. Carlstrom, M. K. Joy, **D. Nagai**, E. D. Reese, K. S. Dawson, *X-ray and Sunyaev-Zel'dovich Effect Measurements of the Gas Mass Fraction in Galaxy Clusters*, 2006, ApJ, 652, 917

13. A. V. Kravtsov, A. Vikhlinin, **D. Nagai**, *A New Robust Low-Scatter X-ray Mass Indicator for Clusters of Galaxies*, 2006, ApJ, 650, 128

12. **D. Nagai**, *The Impact of Galaxy Formation on the Sunyaev-Zeldovich Effect of Galaxy Clusters*, 2006, ApJ, 650, 538

11. A. V. Kravtsov, **D. Nagai**, A. Vikhlinin, *Effects of cooling and star formation on the baryon fractions in clusters*, 2005, ApJ, 625, 588-598

10. A. Feltenbacher, A. V. Kravtsov, **D. Nagai**, S. Gottloeber, *Supersonic Motions of Galaxies in Clusters*, 2005, MNRAS, 358, 139

9. **D. Nagai** and A. V. Kravtsov, *The Radial Distribution of Galaxies in ΛCDM clusters*, 2005, ApJ, 618, 557-568

8. O. Y. Gnedin, A. V. Kravtsov, A. A. Klypin, **D. Nagai**, *Response of dark matter halos to condensation of baryons: cosmological simulations and improved adiabatic contraction model*, 2004, ApJ, 616, 16-26

7. S. Kazantzidis, A. V. Kravtsov, A. R. Zentner, B. Allgood, **D. Nagai**, B. Moore, *The Effect of Gas Cooling on the Shapes of Dark Matter Halos*, 2004, ApJ, 611, L73-76

6. **D. Nagai**, A. V. Kravtsov, A. Kosowsky, *Effect of Internal Flows on Sunyaev-Zel'dovich Measurements of Cluster Peculiar Velocities*, 2003, ApJ, 587, 524

5. **D. Nagai** and A. V. Kravtsov, *Cold Fronts in Cold Dark Matter Clusters*, 2003, ApJ, 587, 514

4. S. J. LaRoque, M. K. Joy, J. E. Carlstrom, H. Ebeling, W. L. Holzapfel, A. D. Miller, **D. Nagai**, S. K. Patel, E. D. Reese, *Sunyaev-Zel'dovich Effect Imagining of MACS Galaxy Clusters at z>0.5*, 2003, ApJ, 583, 559

3. K. S. Dawson, W. L. Holzapfel, J. E. Carlstrom, S. J. LaRoque, A. D. Miller, **D. Nagai**, M. K. Joy, *Measurement of Arcminute-Scale Anisotropy with the Berkeley-Illinois-Maryland Association Array*, 2002, ApJ, 581, 86

2. M. K. Joy, S. J. LaRoque, L. Grego, J. E. Carlstrom, K. S. Dawson, H. Ebeling, W. L. Holzapfel, **D. Nagai**, E. D. Reese, *Sunyaev-Zel'dovich Effect Imaging of Massive Clusters of Galaxies at Redshift Z>0.8*, 2001, ApJL, 551, L1

1. **D. Nagai**, M. E. Sulkanen, A. E. Evrard, *A multiphase model for the intracluster medium*, 2000, MNRAS, 316, 120

Book Chapter

1. **D. Nagai** & K. Dolag. A book chapter on "Computational Modeling of Galaxy Cluster Formation", *The Encyclopedia of Cosmology*, 2018. Volume II, Kentaro Nagamine (Ed.), World Scientific Series in Astrophysics *(https://www.worldscientific.com/worldscibooks/10.1142/9496-vol2)*

Review Papers

4. G. W. Pratt, M. Arnaud, A. Biviano, D. Eckert, S. Ettori, **D. Nagai**, N. Okabe, T. H. Reiprich, *The galaxy cluster mass scale and its impact on cosmological constraints from the cluster population*, 2019, Space Science Reviews, 215, 25 *(astro-ph/1902.10837)*

3. A. Simionescu, J. ZuHone, I. Zhuravleva, E. Churazov, M. Gaspari, **D. Nagai**, N. Werner, E. Roediger, R. Canning, D. Eckert, L. Gu, F. Paerels, *Constraining Gas Motions in the Intra-Cluster Medium*, 2019, Space Science Reviews, 215, 24 *(astro-ph/1902.00024)*

2. T. Mroczkowski, **D. Nagai**, K. Basu, J. Chluba, J. Sayers, R. Adam, E. Churazov, A. Crites, L. Di Mascolo, D. Eckert, J. Macias-Perez, F. Mayet, L. Pretto, E. Pointecouteau, C. Romero, F. Ruppin, E. Scannapieco, J. Zuhone, *Astrophysics with the Spatially & Spectrally Resolved Sunyaev-Zel'dovich Effect: A Millimetre/Submillimetre Probe of the Warm and Hot Universe*, 2019, Space Science Reviews, 215, 17 *(astro-ph/1811.02310)*

1. S. Walker, A. Simionescu, **D. Nagai**, N. Okabe, D. Eckert, T. Mroczkowski, H. Akamatsu, S. Ettori, & V. Ghirardini, *The physics of galaxy cluster outskirts*, 2019, Space Science Reviews, 215, 7 *(astro-ph/1810.00890)*

Conference Proceedings, Commentaries, & Articles

20. E. M. Silich, E. Bellomi, J. Sayers, J. ZuHone, U. Chadayammuri, S. Golwala, D. Hughes, A. Montana, T. Mroczkowski, **D. Nagai**, D. Sanchez, S. A. Stanford, G. Wilson, M. Zemcov, A. Zitrin, *Improved Constraints on Mergers with SZ, Hydrodynamical simulations, Optical, and X-ray (ICM-SHOX). Paper II: Galaxy cluster sample overview*, published in Proc. of the mm Universe 2023 conference (astro-ph/2404.04379)

19. T. Weaver, H. Aung, D. Cornwell, **D. Nagai**, A. Aragon, *Reconstructing Filaments around Galaxy Clusters from Spectroscopic Surveys using Machine Learning*, 2023, RNAAS, 7, 268

18. E. M. Silich, E. Bellomi, J. Sayers, J. ZuHone, M. Brodwin, U. Chadayammuri, S. Golwala, D. Hughes, A. Montana, T. Mroczkowski, **D. Nagai**, D. Sanchez, S. A. Stanford, G. Wilson, M. Zemcov, A. Zitrin, *Improved Constraints on Mergers with SZ, Hydrodynamical simulations, Optical, and X-ray (ICM-SHOX) - Paper II: Galaxy cluster sample overview*, to appear in Proc. of the mm Universe 2023 conference, Grenoble (France), June 2023, published by F. Mayet et al. (Eds), EPJ Web of conferences, EDP Sciences

17. P. Singh, **D. Nagai**, B. Oppenheimer, E. Lau, N. Gluck, I. Medlock, *Galactic Gaseous Halos: Mini-Clusters Disrupted by the NASA Feedback*, 2022, Galactic Atmospheres, in press

16. P. Singh, **D. Nagai**, B. Oppenheimer, E. Lau, N. Gluck, I. Medlock, *Galactic Gaseous Halos: Mini-Clusters Disrupted by the NASA Feedback*, 2022, Galactic Atmospheres, in press

15. B. Oppenheimer, **D. Nagai**, E. Lau, P. Singh, A. Butler, N. Gluck, J. D. Jones, I. Medlock, F. Villaescusa-Navarro, *A Multi-Wavelength, Multi-Model Exploration of How Feedback Disrupts Gaseous Atmospheres*, 2022, Galactic Atmospheres, Bulletin of the American Astronomical Society, 54, 1.

14. M. Ntampaka, A. Bonaca, S. Bose, D. J. Eisenstein, B. Hadzhyska, C. Mason, **D. Nagai**, J. S. Speagle, *A Referee Primer for Early Career Astronomers*, 2022, the Bulletin of the AAS *(astro-ph/2205.14270)*

13. K. Sato, M. Ishida, Y. Maeda, K. Mitsuda, Y. Ishisaki, Y. Fujita, Y. Ezoe, I. Mitsuishi, Y. Tawara, K. Osato, N. Kawai, K. Matsushita, **D. Nagai**, K. Yoshikawa, R. Fujimoto, T. G. Tsuru, N. Ota, S. Yamada, Y. Ichinohe, Y. Uchida, Y. Nakashima, N. Yamasaki, *Super DIOS project for exploring "dark baryon"*, submitted to Journal of Low Temperature Physics

12. S. Yamada, T. Ohashi, Y. Ishisaki, Y. Ezoe, Y. Ichinohe, S. Kitazawa, K. Kosaka, R. Hayakawa, K. Nunomura, K. Mitsuda, N. Y. Yamasaki, T. Kikuchi, T. Hayashi, H. Muramatsu, H. Nakashima, Y. Tawara, I. Mitsuishi, Y. Babazaki, D. Seki, R. Suganumai, K. Otsuka, M. Ishihara, K. Osato, N. Ota, M. Tomariguchi, **D. Nagai**, E. Lau, K. Sato, and the DIOS team, *Super DIOS: future X-ray spectroscopic mission to search for dark baryons*, 2018, Journal of Low Temperature Physics *(https://doi.org/10.1007/s10909-018-1918-z)*

11. **D. Nagai**, M. Arnaud, S. Dasadia, M. McDonald, I. Mitsubishi, A. Morandi, *Cluster Physics and Evolution*, 2016, IAU Focus Meeting, 29, 70-78

10. **D. Nagai**, *Cosmology and Astrophysics with Galaxy Clusters*, 2014, AIP Conference Proceedings, Volume 1632, Issue 1, p.88-106 (Graduate School in Astronomy: XIV Special Courses at the National Observatory of Rio de Janeiro, October 2013)

9. **D. Nagai**, *Viewpoint on "Dark Matter May Play Role in Extinctions"*, 2014, Physics, 7, 41

8. O. Gnedin, D. Cerverino, N. Gnedin, A. Klypin, A. Kravtsov, R. Levine, **D. Nagai**, G. Yepes, *Halo Contraction Effect in Hydrodynamic Simulations of Galaxy Formation*, submitted to ApJ *(astro-ph/1108.5736)*

7. **D. Nagai**, *Modeling the Outskirts of Galaxy Clusters using Cosmological Simulations*, 2011, in Proceedings of "Non-thermal Phenomena in Colliding Galaxy Clusters" (Nice, France, November 2010) *(astro-ph/1101.1322)*

6. **D. Nagai**, A. V. Kravtsov, A. Vikhlinin, *Modeling Chandra X-ray observations of Galaxy Clusters using Cosmological Simulations*, 2007, in Proceedings of "Heating vs. Cooling in Galaxies and Clusters of Galaxies" (Garching, Germany, August 2006) *(astro-ph/0611013)*

5. A. Vikhlinin, A. V. Kravtsov, **D. Nagai**, *The Perfect Slope: A new robust low-scatter X-ray mass indicator for clusters of galaxies*, 2006, in Proceedings of "From dark halos to light" (La Thuile, Italy, March 2006) *(astro-ph/0608330)*

4. S. Kazantzidis, A. R. Zentner, **D. Nagai**, *The Effect of Gas Cooling on the Shapes of Dark Matter Halos*, 2005, in Proceedings of "Mass Profiles and Shapes of Cosmological Structures" (Paris, France, July 2005) *(astro-ph/0508114)*

3. **D. Nagai** and A. V. Kravtsov, *Simulating the Formation of Galaxy Clusters*, 2004, in Proceedings of IAU Colloquium 195 "Outskirts of Galaxy Clusters : intense life in the suburbs" (Torino, Italy, March 2004) *(astro-ph/0404350)*

2. **D. Nagai** and A. V. Kravtsov, *High-Resolution Simulations of Clusters of Galaxies*, 2003, in Proceedings of "Soft X-ray emission from Clusters of Galaxies and Related Phenomena" (Huntsville, AL, December 2002)

1. L. Grego, M. Joy, J. E. Carlstrom, S. LaRoque, **D. Nagai**, K. Dawson, H. Ebeling, E. D. Reese, W. L. Holzapfel, *Masses of High-Redshift Cluster via SZ Effect Observations*, 2002, ASP Proceedings of "Tracing Cosmic Evolution with Galaxy Clusters"

NASA 2023 Astrophysics Probes

1. R. Kraft, M. Markevitch, C. Kilbourne, J. S. Adams, H. Akamatsu, M. Ayromlou, S. R. Bandler, D. A. Bennett, A. Bhardwaj, V. Biffi, D. Bodewits, A. Bogdán, M. Bonamente, S. Borgani, G. Branduardi-Raymont, J. N. Bregman, J. N. Burchett, J. Cann, J. Carter, P. Chakraborty, E. Churzov, R. A. Crain, R. Cumbee, R. Davé, M. DiPirro, K. Dolag, W. B. Doriese, W. Dunn, M. Eckart, D. Eckert, S. Ettori, W. Forman, M. Galezzi, A. Gall, E. Gatuzz, N. Hell, E. Hodges-Kluck, C. Jackman, A. Jahromi, F. Jennings, C. Jones, P. Kaaret, P. J. Kavanagh, R. L. Kelley, I. Khabibullin, C.-G. Kim, D. Koutroumpa, O. Kov'acs, K. D. Kuntz, S.-C. Lin, E. Lau, S.-H. Lee, M. Leutenegger, C. Lisse, L. Lovisari, D. McCammon, S. McEntee, F. Mernier, E. D. Miller, **D. Nagai**, M. Negro, D. Nelson, J.-W. Ness, P. Nulsen, A. Ogorzalek, B. Oppenheimer, L. Oskinova, D. Patnaude, R. W. Pfeifle, A. Pillepich, P. Plucinsky, D. Pooley, F. S. Porter, S. Randall, E. Rasia, J. Raymond, M. Ruszkowski, K. Sakai, A. Sarkar, M. Sasaki, K. Sato, G. Schellenberger, J. Schaye, A. Simionescu, S. J. Smith, J. F. Steiner, J. Stern, Y. Su, M. Sun, G. Tremblay, N. Truong, J. Tutt, S. Veilleux, A. Vikhlinin, S. Vladutescu-Zopp, M. Vogelsberger, S. A. Walker, K. Weaver, D. M. Weigt, N. Werner, S. J. Wolk, C. Zhang, W. W. Zhang, I. Zhuravleva, J. ZuHone, *Line Emission Mapper: Probing Physics of Galaxy Formation*, 2022, A mission concept for NASA 2023 Astrophysics Probes, in press (*astro-ph/2211.09827*)

Snowmass 2022 White Papers

4. E. J. Baxter, C. Chang, A. Hearin, J. Blazek, L. E. Bleem, S. Ferraro, M. Ishak, K. S. Karkare, A. Leauthaud, J. Liu, R. Mandelbaum, J. Meyers, A. Morandinezhad Dizgah, **D. Nagai**, J. A. Newman, Y. Omori, N. Sehgal, M. White, J. Zuntz, M. A. Alvarez, C. Avestruz, F. Bianchini, S. Bocquet, B. Bolliet, J. Carlstrom, C. Doux, A. van Engelen, T. Goh, S. Grandis, J. C. Hill, A. von der Linden, A. S. Maniyar, G. A. Marques, A. Porredon, J. Prat, N. Robertson, E. Schaan, S. Shaikh, T. Shin, Y. Zhang, *Snowmass2021 Cosmic Frontier White Paper: Opportunities from Cross-survey Analyses of Static Probes*, submitted to Snowmass 2022 White Paper (*astro-ph/2203.06795*)

3. The CMB-S4 Collaboration (with 350+ authors/endorsers), *Snowmass2021 CMB-S4 White Paper*, submitted to Snowmass 2021 White Paper (*astro-ph/2203.08024*)

2. C. L. Chang, K. M. Huffenberger, B. A. Benson, F. Bianchini, J. Chluba, J. Delabrouille, S. Hannany, W. C. Jones, A. J. Kogut, J. Meyers, N. Sehgal, Y. Akrami, S. M. Simon, C. Umilta, K. N. Abazajian, J. Austermann, Z. Ahmed, Y. Akrami, A. J. Anderson, B. Ansarinejad, J. Austermann, C. Baccigalupi, D. Barkats, D. Barron, P. S. Barry, N. Battaglia, E. Baxter, D. Beck, A. N. Bender, C. Bennett, B. Beringue, C. Bischoff, D. Beck, B. Bolliet, J. R. Bond, T. Brinckmann, J. Borrill, T. Brinckmann, M. L. Brown, E. Calabrese, J. Carlstrom, A. Challinor, C. Chang, Y. Chinone, W. Coulton, A. Cukierman, F.-Y. Cyr-Racine, S. M. Duff, C. Dvorkin, A. van Engelen, J. Errard, J. S. Eskilt, T. Essinger-Hilman, G. Fabbian, C. Feng, S. Ferraro, J. Filipinni, K. Freese, N. Galitzki, E. Gawiser, D. Grin, E. Grohs, A. Gruppuso, J. E. Gudmundsson, N. W. Halverson, J.-C. Hamilton, K. Harrington, S. Henrot-Versille, B. Hensley, J. C. Hill, A. D. Hincks, R. Hlozek, W. Holzapfel, S. C. Hotinli, H. Hui, A. Ibitoye, M. Johnson, B. R. Johnson, J. H. Kang, K. S. Karkare, L. Knox, L. Legrard, K. Lau, L. Legrand, M. Loverde, P. Lubin, Y.-Z. Ma, T. Mroczkowski, S. Mukherjee, M. Munchmeyer, **D. Nagai**, J. Nagy, M. Niemack V. Novosad, Y. Omori, G. Orlando, Z. Pan, L. Perotto, M. A. Petroff, L. Pogosian, C. Pryke, A. Rahlin, C. L. Reichardt, M. Ramazeilles, Y. Raphaeli, J. Ruhl, E. Schaan, S. Shandera, M. Shimon, A. Soliman, A. A. Stark, G. D. Starkman, R. Stompor, C. Trendafilova, R. B. Thakur, C. Trendafilova, M. Tristram, P. Trivedi, G. Tucker, E. D. Valentino, J. Vieira, A. Vieregg, G. Wang, S. Watson, L. Wenzl, E. J. Wollack, W. L. Kimmy Wu, Z. Xu, D. Zegeye, C. Zhang, *Snowmass2021 Cosmic Frontier Cosmic Microwave Background Measurements White Paper*, submitted to Snowmass 2021 White Paper (*astro-ph/2203.07638*)

1. The CMB-HD Collaboration: S. Aiola, Y. Akrami, K. Basu, M. Boylan-Kolchin, T. Brinckmann, S. Bryan, C. M. Casey, J. Chluba, S. Clesse, F-Y Cyr-Racine, L. D. Mascolo, S. Dicker, T. Essinger-Hileman, G. S. Farren, M. A. Fedderke, S. Ferraro, G. M. Fuller, N. Galitzki, D. Grin, D. Han, M. Hasselfield, G. Holder, S. C. Hotinli, B. Jain, B. Johnson, M. Johnson, P. Klaassen, A. MacInnis, M. Madhavacheril, S. Mandal, P. Mauskopf, D. Meerburg, J. Meyers, V. Miranda, T. Mroczkowski, S. Mukherjee, M. Munchmeyer, J. Munoz, S. Naess, **D. Nagai**, T. Namikawa, L. Newburgh, H. N. Nguyen, M. Niemack, B. D. Oppenheimer, E. Pierpaoli, S. Raghunathan, E. Schaan, N. Sehgal, B. Sherwin, S. Simon, A. Slosar, K. Smith, D. N. Spergel, E. Switzer, P. Trivedi, Y,.-D. Tsai, A. van Engelen, B. Wandelt, E. Wollack, K. Wu, *Snowmass2021 CMB-HD White Paper*, submitted to Snowmass 2021 White Paper (*astro-ph/2203.05728*)

Snowmass 2021 Letter of Interests

3. A. Hearin, A. Leauthaud, **D. Nagai**, *Dark Energy Discovery with Multi-Survey Cross-Correlations*, Letter of Interests, submitted to Snowmass 2021 LOI

2. B. Nord, **D. Nagai**, M. Ntampaka, Y. Zhang, A. Ciprijanovic, J. Wu, J. S. John, C. Avestruz, *Cycle and symbiosis: AI and Cosmology intersect to produce new knowledge and tools*, Letter of Interests,

submitted to Snowmass 2021 LOI

1. N. Sehgal, S. Aiola, Y. Akrami, K. Basu, M. Boylan-Kolchin, S. Bryan, C. M. Casey, S. Clesse, F-Y Cyr-Racine, L. D. Mascolo, T. Essinger-Hileman, S. Dicker, S. Ferraro, G. M. Fuller, N. Galitzki, D. Han, M. Hasselfield, G. Holder, B. Jain, B. Johnson, M. Johnson, P. Klaassen, A. MacInnis, M. Madhavacheril, P. Mauskopf, D. Meerburg, J. Meyers, T. Mroczkowski, M. Munchmeyer, S. Naess, **D. Nagai**, T. Namikawa, L. Newburgh, H. N. Nguyen, M. Niemack, B. D. Oppenheimer, E. Pierpaoli, E. Schaan, B. Sherwin, A. Slosar, D. N. Spergel, E. Switzer, P. Trivedi, Y,.-D. Tsai, A. van Engelen, B. Wandelt, E. Wollack, *CMB-HD: An Ultra-Deep, High-Resolution Millimeter-Wave Survey Over Half the Sky*, Letter of Interests, submitted to Snowmass 2021 LOI

AURA-Commissioned Whitepaper

1. S. Geazari, M. Bentz, K. De, K. D. French, A. Meisner, M. Ntampaka, R. Jadicke, E. Patel, D. Perley, R. Sanderson, C. Aganze, I. Andreoni, E. F. Bell, E. Berger, I. Dell'Antonio, R. Foley, H. Hsieh, M. Kasliwal, J. Kastner, C. D. Kilpatrick, J. D. Kirkpatrick, C. Lam, K. Meech, D. Minniti, E. O. Nadler, **D. Nagai**, J. Pierel, I. Shivaei, R. Street, E. J. Tollerud, B. Williams, *R2-D2: Roman and Rubin – From Data to Discovery*, 2022, AURA-commissioned whitepaper submitted to the Director of STScI and the Director of NOIRLab (*astro-ph/2202.12311*)

DOE-NASA 2021 Request for Information

1. S. Bailey, C. Baltay, S. BenZvi, E. Buckley-Geer, R. Cahn, K. Dawson, R. Demina, A. Dey, D. J. Eisenstein, X. Fan, S. Ferraro, B. Flaugher, D. Gruen, J. Guy, S. Habib, A. Hearin, K. Heitmann, K. Honscheid, D. Huterer, R. Kehoe, A. Kim, D. Kirkby, R. Kron, O. Lahav, A. Leauthaud, C-H Lee, M. E. Levi, P. Martini, P. McDonald, J Moustakas, A. D. Myers, **D. Nagai**, J. A. Newman, P. Nugent, N. Padmanabhan, N. Palanque-Delabrouille, C. Poppett, C. M. Rockosi, L. Samushia, E. Schlafly, D. J. Schlegel, M. Schubnell, H-J. Seo, Z. Slepian, D. Sprayberry, G. Tarle, J. Tinker, D. Weinberg, M. White, M. J. Wilson, Z. Zheng, *New Cosmology Constraints in Imaging and Spectroscopy with Simulations, Theory & DESI-II*, Request for Information, submitted to DOE-NASA 2021 RFI.

Voyage 2050 White Papers

3. K. Basu, M. Remazeilles, J.-B. Melin, D. Alonso, J. G. Bartlett, N. Battaglia, J. Chluba, E. Churazov, J. Delabrouille, J. Erler, S. Ferraro, C. Hernandez-Monteagudo, J. C. Hill, S. C. Hotinli, I. Khabibullin, M. Madhavacheril, T. Mroczkowski, **D. Nagai**, S. Raghunathan, J. A. R. Martin, J. Sayers, D. Scott, N. Sugiyama, R. Sunyaev, I. Zubeldia, *A Space Mission to Map the Imprint of the Entire Observable Universe on the CMB*, 2021, Experimental Astronomy, 1-37 (ESA Voyage 2050 Science White Paper: *astro-ph/1909.01592*)

2. J. Delabrouille, M. H. Abitbol, N. Aghanim, Y Ali-Haimoud, D. Alonso, M. Alvarez, A. J. Banday, J. G. Bartlett, J. Baselmans, K. Basu, N. Battaglia, J. R. B. Climent, J. L. Bernal, M. Bethermin, B. Bolliet, M. Bonato, F. R. Bouchet, P. C. Breysse, C. Burigana, Z-Y Cai, J. Chluba, E. Churazov, H. Bannerbauer, P. De Bernardis, G. D. Zotti, E. D. Valentino, E. Dimastrogiovanni, A. Endo, J. Erler, S. Ferraro, F. Finelli, D. Fixsen, S. Hanany, L. Hart, C. Hernandez-Monteagudo, J. C. Hill, S. C. Hotinli, K. Karatsu, K. Karkare, G. K. Keating, I. Khabibullin, A. Kogut, K. Kohri, E. D. Kovetz, G. Lagache, J. Lesgourgues, M. Madhavacheril, B. Maffel, N. Mandolesi, C. Martins, S. Masi, J. Mather, J-B Melin, A. M. Dizgah, T. Mroczkowski, S. Mukherjee, **D. Nagai**, M. Negrello, N. Palanque-Delabrouille, D. Paoletti, S. D. Patil, F. Piacentini, S. Raghunathan, A. Ravenni, M. Remazeilles, V. Reveret, L. Rodriguez, A. Rotti,

J. A. R. Martin, J. Sayers, D. Scott, J. Seilk, M. Silva, T. Souradeep, N. Sugiyama, R. Sunyaev, E. R. Switzer, A. Tartari, T. Trombetti, I. Zubeldia, *Microwave Spectro-Polarimetry of Matter and Radiation across Space and Time*, 2021, Experimental Astronomy, 1-44 (ESA Voyage 2050 Science White Paper: *astro-ph/1909.01591*)

1. A. Simionescu, S. Ettori, N. Werner, **D. Nagai**, F. Vazza, H. Akamatsu, C. Pinto, J. de Plaa, N. Wijers, D. Nelson, E. Pointecouteau, G. W. Pratt, D. Spiga, E. Lau, M. Rossetti, F. Gastaldello, V. Biffi, E. Bulbul, J. W. den Herder, D. Eckert, F. Fraternali, B. Mingo, G. Pareschi, G. Pezzulli, T. H. Reipirich, J. Schaye, S. Walker, J. Werk, *Voyage through the Hidden Physics of the Cosmic Web*, 2021, Experimental Astronomy, 1-37 (ESA Voyage 2050 Science White Paper: *astro-ph/1908.01778*)

Astro 2020 Decadal Survey White Papers

13. N. Sehgal, S. Aiola, Y. Akrami, K. Basu, M. Boylan-Kolchin, S. Bryan, C. M. Casey, S. Clesse, F-Y Cyr-Racine, L. D. Mascolo, T. Essinger-Hileman, S. Dicker, S. Ferraro, G. M. Fuller, N. Galitzki, D. Han, M. Hasselfield, G. Holder, B. Jain, B. Johnson, M. Johnson, P. Klaassen, A. MacInnis, M. Madhavacheril, P. Mauskopf, D. Meerburg, J. Meyers, T. Mroczkowski, M. Munchmeyer, M. Munchmeyer, S. Naess, **D. Nagai**, T. Namikawa, L. Newburgh, H. N. Nguyen, M. Niemack, B. D. Oppenheimer, E. Pierpaoli, E. Schaan, B. Sherwin, A. Slosar, D. N. Spergel, E. Switzer, P. Trivedi, Y,.-D. Tsai, A. van Engelen, B. Wandelt, E. Wollack, *CMB-HD: Astro2020 RFI Response*, APC White Paper for the Astro2020 Decadal *(astro-ph/2002.12714)*

12. CMB-S4 collaboration (225 co-authors), *CMB-S4 Science Case, Reference Design, and Project Plan*, APC White Paper for the Astro2020 Decadal *(astro-ph/1907.04473)*

11. N. Sehgal, S. Aiola, K. Basu, S. Bryan, F-Y Cyr-Racine, S. Dicker, S. Ferraro, G. M. Fuller, D. Han, M. Hasselfield, G. Holder, B. Jain, B. Johnson, M. Johnson, P. Klaassen, M. Madhavacheril, L. D. Mascolo, P. Mauskopf, D. Meerburg, J. Meyers, T. Mroczkowski, M. Munchmeyer, S. Naess, **D. Nagai**, L. Newburgh, H. N. Nguyen, M. Niemack, B. D. Oppenheimer, E. Pierpaoli, E. Schaan, A. Slosar, D. N. Spergel, E. Switzer, A. van Engelen, E. Wollack, *Science from an Ultra-Deep, High-Resolution Millimeter-Wave Survey*, APC White Paper for the Astro2020 Decadal *(astro-ph/1906.10134)*

10. M. Ruszkowski, **D. Nagai**, I. Zhurvleva, C. Brummell-Smith, Y. Li, E. Hodges-Kluck, H-Y. K. Yang, K. Basu, J. Chluba, E. Churazov, M. Donahue, A. Fabian, C.-A. Faucher-Giguère, M. Gaspari, J. Hlavacek-Larrondo, M. McDonald, B. McNamara, P. Nulsen, T. Mroczkowski, R. Mutshozky, C. Reynolds, A. Vikhlinin, M. Voit, N. Werner, E. Zweibel, *Supermassive Black Hole Feedback (astro-ph/1903.09686)*

9. M. Markevitch, E. Bulbul, E. Churazov, S. Giacintucci, R. Kraft, M. Kunz, **D. Nagai**, E. Roediger, M. Ruszkowski, A. Schekochihin, R. van Weerren, A. Vikhlinin, S. A. Walker, Q. Wang, N. Werner, D. Wik, I. Zhuravleva, J. ZuHone, *Physics of Cosmics Plasma from High Angular Resolution X-ray Imaging of Galaxy Clusters (astro-ph/1903.06356)*

8. J. Burchett, **D. Nagai**, I. Butsky, M. Tremmel, R. Bordoloi, G. Bryan, Z. Cai, R. Canning, H.-W. Chen, A. Coil, D. Fielding, M. Fumagalli, S. D. Johnson, V. Khaire, K.-G. Lee, N. Lehner, N. Mandelker, J. O'Meara, S. Muzahid, D. Nelson, B. D. Oppenheimer, M. Postman, M. S. Peeples, T. Quinn, M. Rafelski, J. Ribaudo, K. Rubin, J. Stern, N. Tejos, S. Tonnesen, T. Tripp, Q. D. Wang, C. N. A. Willmer, Y. Zheng, *Ultraviolet Perspectives on Diffuse Gas in the Largest Cosmic Structures (astro-ph/1903.06201)*

7. K. Basu, J. Erler, J. Chluba, J. Delabrouille, J. C. Hill, T. Mroczkowski, M. Niemack, M. Remazeilles, J. Sayers, D. Scott, E. M. Vavagiakis, M. Zemcov, M. Aravena, J. G. Bartlett, N. Battaglia, T. L. Herter, P. Klaassen, E. Komatsu, B. Magnelli, A. B. Mantz, P. D. Meerburg, J-B. Melin, **D. Nagai**, S. C. Parshley, E. Pointecouteau, M. E. Ramos-Ceja, M. Ruszkowski, N. Sehgal, G. G. Stacey, R. Sunyaev, *SZ*

spectroscopy in the Coming Decade: Galaxy Cluster Cosmology and Astrophysics in the Sub-Millimeter (astro-ph/1903.04944)

6. N. Battaglia, J. C. Hill, S. Amodeo, J. G. Bartlett, K. Basu, J. Erler, S. Ferraro, L. Hernquist, M. Madhavacheril, M. McQuinn, T. Mroczkowski, **D. Nagai**, E. Schaan, R. Somerville, R. Sunyaev, M. Vogelsberger, J. Werk, *Probing Feedback in Galaxy Formation with Millimeter-wave Observations (astro-ph/1903.04647)*

5. E. Bulbul, M. Gaspari, G. Alvarez, C. Avestruz, M. Bautz, B. Benson, V. Biffi, D. Burke, N. Clerc, E. Cucchetti, U. Chadayammuri, E. Churazov, E. Cucchetti, D. Eckert, S. Ettori, B. Forman, F. Gastaldello, V. Ghirardini, R. Kraft, M. Markevitch, M. McDonald, E. Miller, T. Mroczkowski, **D. Nagai**, P. Nulsen, G. W. Pratt, S. Randall. T. Reiprich, M. Roncarelli, A. Simionescu, R. Smith, G. Tremblay, S. Walker, I. Zhuravleva, J. ZuHone, *Probing Macro-Scale Gas Motions and Turbulence in Galaxy Cluster Outskirts (astro-ph/1903.04597)*

4. S. Walker, **D. Nagai**, A. Simionescu, M. Markevitch, H. Akamatsu, M. Arnaud, C. Avestruz, M. Bautz, V. Biffi, S. Borgani, E. Bulbul, E. Churazov, K. Dolag, D. Eckert, S. Ettori, Y. Fujita, M. Gaspari, V. Ghirardini, R. Kraft, E. T. Lau, A. Mantz, K. Matsushita, M. McDonald, E. Miller, T. Mroczkowski, P. Nulsen, N. Okabe, N. Ota, E. Pointecouteau, G. Pratt, K. Sato, X. Shi, G. Tremblay, M. Tremmel, F. Vazza, I. Zhuravleva, E. Zinger, J. ZuHone, *Unveiling the Galaxy Cluster – Cosmic Web Connection with X-ray observations in the Next Decade (astro-ph/1903.04550)*

3. N. Sehgal, H. N. Nguyen, J. Meyers, M. Munchmeyer, T. Mroczkowski, L. Di Mascolo, E. Baxter, B. Beringue, F-Y Cyr-Racine, M. Madhavacheril, B. Beringue, G. Holder, **D. Nagai**, S. Dicker, C. Dvorkin, S. Ferraro, G. M. Fuller, V. Gluscevic, D. Han, B. Jain, B. Johnson, P. Klaassen, D. Meerburg, P. Motloch, D. N. Spergel, P. Adshead, R. Armstrong, C. Baccigalupi, D. Barron, K. Basu, B. Benson, F. Beutler, J. R. Bond, J. Borrill, E. Calabrese, O. Darwish, S. L. Denny, K. A. Douglass, T. Essinger-Hileman, S. Foreman, D. Frayer, M. Gerbino, S.Gontcho, E. B.. Grohs, N. Gupta, J. C. Hill, C. M. Hirata, S. Hotinli, M. C. Johnson, M. Kamionkowski, E. D. Kovetz, E. T. Lau, M. Liguori, T. Namikawa, L. Newburgh, B. Patridge, F. Piacentni, B. Rose, G. Rossi, B. Saliwanchik, E. Schaan, H. Shan, S. Simon, A. Slosar, E. R. Switzer, H. Trac, W. Xu, M. Zaldarriaga, M. Zemcov, *Science from an Ultra-Deep, High-Resolution Millimeter-Wave Survey (astro-ph/1903.03263)*

2. T. Mroczkowski, **D. Nagai**, P. Andreani, M. Arnaud, J. Bartlett, N. Battaglia, K. Basu, E. Bulbul, J. Chluba, E. Churazov, C. Cicone, M. Devlin, N. DeNigris, S. Dicker, L. Di Mascolo, S. Golwala, F. Guglielmetti, M. Gaspari, C. Hill, P. Klaassen, T. Kitayama, R. Kneissl, K. Kohno, E. Komatsu, M. Lacy, B. Mason, K. Nyland, C. Romero, J. Sayers, N. Sehgal, S. Simon, R. Sunyaev, G. Wilson, M. Zemcov, J. Zuhone, *A High-resolution SZ view of the Warm and Hot Universe (astro-ph/1903.02595)*

1. M. Ntampaka, C. Avestruz, S. Boada, J. Caldeira, J. Cisewski-Kehe, R. Di Stefano, C. Dvorkin, A. E. Evrard, A. Farahi, D. Finkbeiner, S. Genel, A. Goodman, A. Goulding, S. Ho, A. Kosowsky, P. La Plante, F. Lanusse, M. Lochner, R. Mandelbaum, **D. Nagai**, J. Newman, B. Nord, J. E. G. Peek, A. Peel, B. Poczos, A. Siemiginowska, M. M. Rau, D. J. Sutherland, H. Trac, B. Wandelt, *The Role of Machine Learning in the Next Decade of Cosmology*, 2019, Science White Paper for the Astro2020 Decadal Survey *(astro-ph/1902.10159)*

Astro 2010 Decadal Survey White Papers

5. S. R. Golwala, J. E. Aguirre, K. Basu, B. A. Benson, F. Bertoldi, J. O. Burns, S. E. Church, M. J. Devlin, M. Dobbs, J. W. Fowler, E. J. Hallman, W. L. Holzapfel, A. V. Kravtsov, A. T. Lee, D. P. Marrone, B. S. Mason, A. D. Miller, S. T. Myers, **D. Nagai**, M. Nord, L. Page, C. Pfrommer, E. Pierpaoli, J. E. Ruhl, G. W. Wilson, *Understanding the State of the Intracluster Medium in Galaxy Clusters*

4. S. R. Golwala, J. E. Aguirre, K. Basu, B. A. Benson, F. Bertoldi, J. O. Burns, S. E. Church, M. J. Devlin, M. Dobbs, J. W. Fowler, E. J. Hallman, W. L. Holzapfel, A. V. Kravtsov, A. T. Lee, D. P. Marrone, B. S. Mason, A. D. Miller, S. T. Myers, **D. Nagai**, M. Nord, L. Page, C. Pfrommer, E. Pierpaoli, J. E. Ruhl, G. W. Wilson, *Calibrating Galaxy Clusters as a Tool for Cosmology via Studies of the Intracluster Medium*

3. A. Vikhlinin, S. W. Allen, M. Arnaud, M. Bautz, H. Boehringer, M. Bonamente, J. Burns, A. Evrard, J. P. Henry, C. Jones, B. R. McNamara, **D. Nagai**, D. Rapetti, T. Reiprich, *Cosmological Studies With A Large-Area X-ray Telescope (astro-ph/0903.2297)*

2. S. T. Myers, C. Pfrommer, J. Aguirre, J. R. Bond, J. O. Burns, T. Clarke, M. Devlin, A. Evrard, S. Golwala, S. Habib, K. Heitmann, W. L. Holzapfel, N. E. Kassim, A. Kravtsov, A. T. Lee, M. Markevich, D. Marrone, **D. Nagai**, L. Page, E. Pierpaoli, L. Rudnick, J. Sievers, G. Taylor, M. Voit, *Galaxy Cluster Astrophysics and Cosmology: Questions and Opportunities for the Coming Decade (astro-ph/0903.0401)*

1. A. Kravtsov, A. Gonzalez, A. Vikhlinin, D. Marrone, A. Zabludoff, **D. Nagai**, M. Markevitch, B. Benson, S. Golwala, S. Myers, M. Gladders, D. Rudd, A. Evrard, C. Conroy, S. Allen, *Towards the 2020 vision of the baryon content of galaxy groups and clusters (astro-ph/0903.0388)*