

Curriculum Vitae

Daisuke Nagai

Contact Information

Position: Professor of Physics & Astronomy, Yale University
Director of Graduate Studies, Physics Department, Yale University
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Positions

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

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, computational, and data-driven modeling of galaxy clusters and galaxies and their applications to cosmology and astrophysics.

Publication, Grants & Mentoring

Over 200 publications with 13000+ citations & h-index=55 (from Google Scholar)
Over 180 invited colloquia, seminars, conferences and workshops
Over \$3.5M external grant funding from NASA, NSF, and Research Corporation
Research advisor for 12 postdocs, 20 graduate students, 38 undergraduate students

Teaching

Physics 678 Computing for Scientific Research, Spring 2014, 2015, 2016, 2017
Astronomy/Physics 600 Cosmology, Fall 2016
Physics 469/471 Independent Research in Physics, Spring 2019
Physics 441 Quantum Mechanics & Natural Phenomena II, Fall 2013, 2014, 2015
Physics 420 Statistical Thermodynamics, Fall 2009, 2010
Physics 378 Scientific Computing & Data Science (Course Creation), Fall 2021, 2022, 2023
Physics/Astronomy 343 Gravity, Astrophysics, and Cosmology, Spring 2010, 2012, 2020, 2023
Physics 206 Physical Measurements, Fall 2020 (COVID-19 Special Online Course)
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

Principal Investigator, Computational Cosmology Group, Yale University (2008-Present)
Member, Data Science Advisory Committee, Yale University (2021-Present)
Chair, Task Force on Physics & Data Science, Yale Physics Department (2019-2021)
Academic Co-Director, Yale Center for Research Computing, Yale University (2015-2019)
Director, Physics & Astronomy HPC cluster, Yale University (2013-2015)
Director, Astrophysics HPC cluster, Yale University (2008-2013)

Leadership in Computation & National Committees

CAMELS CGM Science Working Group (Co-Chair: 2020-Present)
Cross-Survey Cross-Correlation Cosmology Project (Co-PI: 2020-Present)
Baryon Pasting Project, LSST DESC (PI: 2019-Present)
NSF Blue Waters Project Site Visiting Panel (2015)

Membership in International Astronomical Missions & Projects

LEM X-ray Mission Science Working Group (2022-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)
Athena X-ray Mission Science Working Group: Galaxy Groups and Clusters (2018-Present)
The Lynx X-ray Surveyor Science Working Group (2016-Present)
International X-ray Observatory (2007-2010)
Chandra XVP program on A133 (PI: Alexey Vikhlinin, Harvard CfA, 2012-Present)
Chandra Cluster Cosmology Project (PI: Alexey Vikhlinin, Harvard CfA, 2004-2010)
HST observation of Warm Gas in Cluster Outskirts (PI: J. Burchett, U.Mass, 2017-Present)
HST observation of Warm Gas in Cluster Outskirts (PI: S. Muzahid, Leiden, 2016-Present)
HST observation of Abell 3827 (PI: R. Massey, U. Durham, 2013-2016)
CCAT SZ Science Working Group (PI: Sunil Golwala, Caltech, 2012-2014)
MUSTANG-2 High-Resolution SZE experiment (PI: Mark Devlin, U.Penn, 2010-2013)
CARMA Cluster Science Working Group (PI: John Carlstrom, U.Chicago, 2013-2014)
Sunyaev-Zel'dovich Array (PI: John Carlstrom, U.Chicago, 2004-2009)
OVRO/BIMA SZE imaging experiment (PI: John Carlstrom, U.Chicago, 1999-2008)

Institute Memberships

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 201)

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)

International Conference Science Organizing Committees

"Observing the mm Universe", Grenoble, France (2023)
"Tracing the Structure Formation in the Universe", EAS Symposium, Netherland (2020)
"ICM Physics and Modeling II", MPA, Garching, Germany (2018)
"ICM Physics and Modeling I", MPA, Garching, Germany (2015)
"The Physics of Galaxy Clusters", Tokyo University of Science, Tokyo, Japan (2013)
"CLJ2010: from Massive Galaxy Formation to Dark Energy", IPMU, Japan (2010)

Proposal Reviewer

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 X-ray Observatory (Cycles 13, 18 & 21 - Chair)
Einstein Fellowship Program
Postdoctoral Program
Blavatnik Regional Awards for Young Scientists (USA)
Cottrell Scholar Award (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)
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 \$3.5M since 2010

- “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
- “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
- “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
- “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), \$51,125 (192,700 SUs), 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), \$39,459 (152,000 SUs), 2020-2021
XSEDE allocation: AST200033
- “Simulating Cosmic Weather in Galaxy Clusters with XSEDE”*
D. Nagai (Co-PI) with E. Lau (Yale), \$11,682 (45,000 CPUs), 2019-2020
XSEDE allocation: AST190003
- “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 Galaxies and Galaxy Clusters”*
D. Nagai (PI), \$493,971, 2014-2018
NSF Extragalactic Astronomy and Cosmology Program
- “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
- “Network Infrastructure: The Future of Research & Collaboration”*
D. Nagai (Co-PI) with A. Sherman (Yale), \$496,253, 2012-2014
NSF 12-541: CC-NIE
- “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

“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

Mentoring of Postdoctoral Associates (as a primary supervisor)

- Dr. Priyanka Singh (Yale 2021-Present: YCAA Prize Fellow)
Postdoc Associate, Astronomical Observatory of Trieste (2018-2021)
Postdoc Associate, IUCCA, 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.)

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)
Postdoc Associate, Harvard Smithsonian Astrophysical Observatory (2021-Present)
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)

Computational Research Support Analyst, Yale Center for Research Computing (2015-Present)
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 Projects)

Zehao Dou (Yale Statistics & Data Science, 2021-Present)

2nd year project: “A Photon Point Cloud ML Approach for X-ray Cluster Mass Estimation”

Naomi Gluck (Yale Physics, 2021-Present)

2nd year project: “AI-accelerated Differentiable Gas Model for Baryon Pasting”
First year project: “AI-accelerated Halo-Galaxy Connection Model”

Isabel Medlock (Yale Astronomy, 2021-2022)

First year project: “Probing CGM with FRB and CAMELS”

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

B. Kline (Yale Applied Mathematics, 2023)
 Senior Essay: “Modeling Dynamical Friction of Infalling Cluster Galaxies”

K. J. McConnell (Yale Astrophysics, 2022-2023)
 Freshman Project: “Roles of AGN and Mergers in Galaxy Evolution”

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

Kevin Hu (Yale Applied Mathematics, 2022)
 Senior Essay: “Accurate Mass Estimation of Galaxy Groups with Machine Learning”

Mehika Patel (Yale Statistics & Data Science, 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: 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)
 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)
 Senior/Junior Projects: “A Differentiable Model of Dark Matter Halo Profile and Shape”
 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 Point Cloud Machine Learning Approach to X-ray Cluster Mass Estimate”
 Sophomore Project: “Simulating Splashback & Accretion Shock 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-Correlation"

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)

- 2025 Sanah Bhimani (Yale Physics) supervised by Prof. Laura Newburgh
- 2023 Bhawna Motwani (Columbia Astronomy) supervised by Prof. Greg Bryan
- 2023 Aritra Ghosh (Yale Astronomy) supervised by Prof. Meg Urry
- 2023 Chuan Tian (Yale Physics) supervised by Prof. Meg Urry
- 2023 Xinyi Chen (Yale Physics) supervised by Prof. Nikhil Padmanabhan
- 2023 London Cooper-Troendle (Yale Physics) supervised by Prof. Bonnie Flemming
- 2022 Daming Li (Yale Physics) supervised by Prof. John Murray
- 2022 Dhruva 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

2022-2023

Yale University: Data Science Advisory Committee
Department of Physics: the Director of Graduate Studies
Department of Physics: Graduate Admission Committee
Department of Physics: Graduate Awards Committee

2021-2022

Yale University: Data Science Advisory Committee
Department of Physics: Graduate Awards Committee
Department of Physics: Graduate University Fellowship Committee
Department of Physics: Mossman Postdoctoral Prize Fellowship Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee

2020-2021

Yale University: Data Science Advisory Committee
Department of Physics: Task Force on Physics and Data Science (Chair)
Department of Physics: Graduate Program Review Committee
Department of Physics: Graduate Awards Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Graduate Admission Committee (reading)
Department of Astronomy: Graduate Admission Committee (reading & interviewing)

2019-2020

Department of Physics: Task Force on Physics and Data Science (Chair)
Department of Physics: Graduate Admission Committee
Department of Astronomy: Graduate Admission Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee

2018-2019

Yale University: Yale Center for Research Computing (Faculty Co-Director)
Yale University: Yale Center for Research Computing Steering Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee

2017-2018

Yale University: Yale Center for Research Computing (Faculty Co-Director)
Yale University: Yale Center for Research Computing Steering Committee
Yale University: Data Governance Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Graduate Program Review Committee (Chair)
Department of Physics: Qualifying Exam Committee

2016-2017

Yale University: Yale Center for Research Computing (Faculty Co-Director)
Yale University: Yale Center for Research Computing Steering Committee
Yale University: Data Governance Committee
Yale University: Advisory Committee on Library Policy
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Qualifying Exam Committee

Department of Astronomy: Qualifying Exam Committee

2015-2016

Yale University: Yale Center for Research Computing (Faculty Co-Director)
Yale University: Yale Center for Research Computing Steering Committee
Yale University: Data Governance Committee
Yale University: Advisory Committee on Library Policy
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Long Range Planning Committee
Department of Physics: Qualifying Exam Committee

2014-2015

Yale University: Yale Center for Research Computing (Faculty Co-Director)
Yale University: Senior Director of Research Technologies Search Committee
Yale University: Advisory Committee on Library Policy
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee (Chair)
Department of Physics: Long Range Planning Committee
Department of Physics: Physics Club Organizer
Department of Physics: Qualifying Exam Committee

2013-2014

Departments of Physics & Astronomy: High Performance Computing (Chair)
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Qualifying Exam Committee

2012-2013

Yale University: High Performance Computing Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Graduate Admission Committee
Department of Physics: Oral Qualifying Exam Committee

2011-2012

Yale University: High Performance Computing Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Departments of Physics & Astronomy: Computing Committee
Department of Physics: Graduate Admission Committee
Department of Physics: Qualifying Exam Committee

2010-2011

Yale University: High Performance Computing Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee
Department of Physics: Qualifying Exam Committee

2009-2010

Yale University: High Performance Computing Committee
Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee (Chair)
Department of Physics: Astrophysics Faculty Search Committee
Department of Physics: Physics Club Organizer
Department of Physics: Graduate Admission Committee
Department of Physics: Graduate Curriculum Committee

Department of Physics: Wilbur Cross Medal Nomination Committee

2008-2009

Yale University: High Performance Computing Committee

Departments of Physics & Astronomy: YCAA Postdoctoral Fellow Search Committee (Chair)

Department of Physics: Astrophysics Faculty Search Committee

Department of Physics: Qualifying Exam Review Committee

Department of Astronomy: Faculty Search Committee

Department of Astronomy: Keck/WIYN/SMART Time Allocation Committee

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

2022

Yale Data Science Symposium, Yale University, CT, Nov

Invited Speaker: Proposed Initiative in Computational Science & Engineering

NASA AI Ethics Principles and Responsibilities Workshop, Virtual, 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, Zoom Meeting, 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, AUG

Invited Talk: "Modeling Multi-wavelength Cosmological Surveys with Baryon Pasting"

NASA SMD AI Workshop, Zoom meeting, MAY

Invited Participant: Development of actionable insight and strategic guidelines for NASA Science

Fundamentals of Gaseous Halos, 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, 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, Santa Cruz, CA, AUG
Invited Talk: "Cosmology and Astrophysics with CGM in the Stage IV Era"
Kavli Summer Program in Astrophysics, 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, 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, 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

152. D. Stevanovich, A. Hearin, **D. Nagai**, *A Differentiable Model of Concentration Evolution for Dark Matter Halos*, submitted to MNRAS
151. F. Hasan, J. N. Burchett, A. Abeyta, D. Hellinger, N. Mandelker, J. Primack, S. Faber, O. Elek, D. Koo, **D. Nagai**, *How Cosmic Web Structures Affect Galaxy Quenching Across Cosmic Time*, to be submitted to MNRAS

Refereed Journal Articles: Submitted / Under Review

150. 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*, submitted to ApJ
149. 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*, submitted to ApJL
148. 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*)
147. 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*, submitted to ApJ (*astro-ph/2212.00051*)
146. 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*, submitted to ApJ (*astro-ph/2211.03892*)
145. 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*, submitted to MNRAS (*astro-ph/2210.11544*)
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*, 2022, MNRAS, in press (*astro-ph/2209.02075*)
143. R. Garcia, E. Salazar, E. Rozo, S. Adhikari, H. Aung, B. Diemer, **D. Nagai**, B. Wolfe, *A Better Way to Define Dark Matter Haloes*, 2022, MNRAS, in press (*astro-ph/2207.11827*)
142. 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*)
141. 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*)

140. D. Farid, H. Aung, **D. Nagai**, A. Farahi, E. Rozo, *Classification of Galaxy Cluster Membership with Machine Learning*, submitted to Astronomy & Computing (*astro-ph/2205.01700*)
139. 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, 2022*, ApJ, in press (*astro-ph/2201.01300*)

Refereed Journal Articles: Published

138. 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, in press (*astro-ph/2204.13131*)
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