Curriculum Vitae
Daisuke Nagai

Contact Information

Positions: Associate Professor of Physics & Astronomy, Yale University
Campus Address: 56 Hillhouse Avenue, New Haven, CT 06511
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URL: http://www.astro.yale.edu/nagai

Positions

Associate Professor of Physics & Astronomy (Tenure)	Yale University	2014-present
Academic Co-Director, Yale Center for Research Computing	Yale University	2015-2019
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

Honors

Stephen Murray Distinguished Visiting Lecturer, Harvard CfA, 2018
Cottrell Scholar Award, Research Corporation, 2012
The IUPAP Young Scientist Prize in Astrophysics, 2011
Yale Junior Faculty Fellowship, 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 origin, composition, and structure formation of the Universe, specializing in theoretical and computational modeling of galaxy clusters and their application to cosmology.

Publications

Over 130 publications with 7500+ citations with h-index=41 (from NASA ADS)
Over 150 invited colloquia, seminars, conferences and workshops
Research advisor for 9 postdocs, 17 graduate students, 24 undergraduate students

Professional Activities

Leadership Positions
- Principal Investigator, Computational Cosmology Group, Yale University (2008-Present)
- 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)

Visiting Professor
- 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

Proposal Reviewer
- National Science Foundation (USA)
  - Division of Astronomical Sciences
  - Blue Waters Project Site Visit Panel
  - Major Research Instrumentation Program
  - Petascale Computing Resource Allocation
  - Astronomy & Astrophysics Postdoctoral Fellowship Program
- National Aeronautics and Space Administration (USA)
  - Astrophysics Theory Program
  - 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)
- 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

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

Science Organizing Committee Member
"ICM Physics and Modeling II", MPA, Garching, Germany (Oct 2018)
"ICM Physics and Modeling I", MPA, Garching, Germany (Jun 2015)
"The Physics of Galaxy Clusters", Tokyo University of Science, Tokyo, Japan (Dec 2013)
"CLJ2010: from Massive Galaxy Formation to Dark Energy", IPMU, Japan (Jun 2010)

Local Organizing Committee Member
"HST Frontier Fields Workshop", Yale University, New Haven, CT (Nov 2014)

Associate Member
Institute for the Fundamental Physics of the Universe, Trieste, Italy, 2019-Present
External Collaborator of the eROSITA X-ray space mission, 2019-Present
CMB-S4 Science Working Group on Galaxy Formation and Evolution, 2018-Present
Athena X-ray Mission Science Working Group: Galaxy Groups and Clusters, 2018-Present
LSST Dark Energy Science Collaboration: Cluster Science Working Group, 2017-Present
The Lynx X-ray Surveyor Science Working Group, 2016-Present
Simons Center for Computational Astrophysics, 2016-Present (Director: David Spergel)
HST observation of Warm Gas in Cluster Outskirts, 2016-2019 (PI: S. Muzahid, Leiden)
HST observation of Abell 3827, 2013-2016 (PI: R. Massey, U. Durham)
CARMA Cluster Science Working Group, 2013-2014 (PI: John Carlstrom, U.Chicago)
Chandra XVP program on A133, 2012-Present (PI: Alexey Vikhlinin, Harvard CfA)
CCAT SZ Science Working Group, 2012-2014 (PI: Sunil Golwala, Caltech)
MUSTANG-2 High-Resolution SZE experiment, 2010-2013 (PI: Mark Devlin, U.Penn)
International X-ray Observatory, 2007-2010
Chandra Cluster Cosmology Project, 2004-2010 (PI: Alexey Vikhlinin, Harvard CfA)
Sunyaev-Zel'dovich Array, 2004-2009 (PI: John Carlstrom, U.Chicago)
OVRO/BIMA SZE imaging experiment, 1999-2008 (PI: John Carlstrom, U.Chicago)

Public Outreach
Public lecturer at the 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)

Teaching

Physics 678 Computing for Scientific Research, Spring 2014, 2015, 2016, 2017
Astro/Physics 600 Cosmology, Fall 2016
Physics 441 Quantum Mechanics & Natural Phenomena II, Fall 2013, 2014, 2015
Physics 420 Statistical Thermodynamics, Fall 2009, 2010
Physics/Astro 343 Gravity, Astrophysics, and Cosmology, Spring 2010, 2012, 2020
Physics 205/206 Modern Physical Measurements, Fall 2008
Physics 171 University Physics for the Life Sciences, Spring 2018, 2019
Physics 170 University Physics for the Life Sciences, Fall 2017

Grants & Funding

"Probing Warm-Hot Gas in the Outskirts of Galaxy Clusters Using Quasar Absorption Lines"
S. Muzahid (PI: PSU), $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"
R. Massey (PI: U.Durham, UK), $38,394 (sub-award to Yale), 2013-2016
NASA Hubble Space Telescope Cycle-20

"Network Infrastructure: The Future of Research & Collaboration"
A. Sherman (PI: 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"
A. Vikhlinin (PI: 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

External Funding: **$2,332,656** (**$1,691,809** as a PI) since 2010

Mentoring of Postdoctoral Associates

Dr. Michael Tremmel (Yale 2017-Present: YCAA Prize Fellow)
Ph.D., University of Washington (2017)

Dr. Nir Mandelker (Yale 2016-Present: Tschira Postdoctoral Fellow)
Ph.D., Hebrew University (2016)

Dr. Erwin Lau (Yale 2011-2017)
Postdoc Associate, University of Miami (2018-Present)
Postdoc Associate, Shanghai Astronomical Observatory, China (2010-2011)
Ph.D., University of Chicago (2010)

Dr. Andrew Wetzel (Yale 2011-2013)
Assistant Professor, University of California, Davis (2017-Present)
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)
Senior Data Scientist, Uber, San Francisco (2016-Present)
Data Scientist, ThoughtWorks, San Francisco (2014-2016)
Postdoc Associate, Los Alamos National Laboratory (2008-2011)
Ph.D., University of Pittsburgh (2008)

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)
Associate Professor, University of Utah, Salt Lake City (2015-Present)
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 Graduate Student Research (Ph.D.)

Han Aung (Yale Physics, 2015-Present)
"Gas Stream in the Universe: A New Frontier in Cosmology and Galaxy Formation"

Urmila Chadayammuri (Yale Astronomy, 2015-Present)
"Modeling AGN feedback and Mergers in Galaxy Cluster Cores"
SAO Predoctoral Fellow, Harvard CfA (2018-Present)

Camille Avestruz (Yale Physics, Ph.D. 2015)
LSA Collegiate Postdoctoral Fellowship, University of Michigan (2019-Present)
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)
Postdoc Associate, University of Miami (2018-Present)
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 (Master's Projects)

Sheridan Green (Yale Physics, 2017-Present)
"Using X-ray Morphological Parameters to Strengthen Galaxy Cluster Mass Estimates"
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

Luis Fernando Machado Poletti Valle (Yale 2016-2018)
Software Engineer, Bloomberg, New York, NY
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 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 2016-2017)
Graduate Student: Princeton University, Computational & Applied Mathematics
Senior Essay: "Improving Galaxy Cluster Mass Estimation using Machine Learning"

Julia Menzel (Yale 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 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 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 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 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 2013)
Graduate Student: Princeton University, Physics
Junior Project: "Analyzing AGN Cluster Simulations"

Ian Vorbach (Yale 2012)
Graduate Student: Stanford University, Aeronautics & Astronautics
Senior Essay: "Modeling AGN evolution in Galaxy Clusters"

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

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

Pearson Miller (Yale 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 2009-2011)
Graduate Student: University of Chicago, Astrophysics
Senior Essay: "Modeling AGN Clustering with Halo Occupation Distribution"

Frank Thompson (Yale 2011)
Junior Project: "Mass Assembly Histories of Galaxy Groups"

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

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

Daksha Rajagopalan (Yale 2010)
Master's Degree: University of Aberdeen, Social Anthropology
Sophomore Project: "Lyman-Alpha Emitters"

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

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

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

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

Ph.D. Dissertation Committee Memberships

2022 Daming Li (Yale Physics) supervised by Prof. John Murry
2022 London Cooper-Troendle (Yale Physics) supervised by Prof. Bonnie Flemming
2022 Dhruba Dutta Chowdhury (Yale Astronomy) supervised by Prof. Frank van den Bosch
2021 Urmila Chadayammuri (Yale Astronomy) supervised by Daisuke Nagai
2021 Han Aung (Yale Physics) supervised by Daisuke Nagai
2021 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 Dasuke 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

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

Invited Colloquia & Seminars

2019

Astronomy Colloquium at University of Massachusetts, Amherst, MA, OCT
Galaxies & Cosmology Seminar at Harvard CfA, Cambridge, MA, SEP

2018

Astrophysics Seminar at U. Trieste, Trieste, Italy, DEC
Cosmology Group Meeting at Harvard CfA, Cambridge, MA, NOV
ITC Luncheon at Harvard CfA, Cambridge, MA, NOV
Stephen Murray Lecture at Harvard CfA, Cambridge, MA, OCT
Physics Club Colloquium at Yale University, New Haven, CT, OCT
Institute Seminar at MPA, Garching, Germany, SEP

2017

Physics Seminar at Trinity College, Hartford, CT, MAR
Astrophysics Seminar at Tokyo Metropolitan University, Tokyo, Japan, JAN

2016

Physics Club Colloquium (Graduate Student Open House) at Yale University, New Haven, CT, APR
Astronomy Colloquium at Pennsylvania State University, University Park, PA, MAR

2015

Astronomy & Space Sciences Colloquium at Cornell University, Ithaca, NY, SEP
Cosmology Seminar at Ludwig Maximilians University, Munich, Germany, JUL
Astrophysics Colloquium at University of Bonn, Bonn, Germany, JUL
High Energy Astrophysics Seminar at MPA, Garching, Germany, JUL
Cosmology Lecture Series at MPA, Garching, Germany, JUN
Munich Joint Astronomy Colloquium at MPA/MPE/ESO, Garching, Germany, JUN
Cosmology Seminar at MPA, Garching, Germany, MAY

2014

ISAS Astrophysics Colloquium at Japan Aerospace Exploration Agency, Tokyo, Japan, DEC
Astrophysics Seminar at Institute for Advanced Study, Princeton, NJ, MAR

2013

Space Science Laboratory Colloquium at UC Berkeley, Berkeley, CA, DEC
Astrophysics Colloquium at Stanford University & SLAC, Palo Alto, CA, DEC
Joint Astrophysics Seminar at McGill & U.Montreal, Montreal, Canada, NOV
Physics Club Colloquium at Yale University, New Haven, CT, SEP
Astrophysics Seminar at Columbia University, New York, NY, SEP
GRAPPA Seminar at University of Amsterdam, Amsterdam, Netherlands, APR
Astrophysics Seminar at Purdue University, West Lafayette, FEB

2012

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

Cosmophysics Seminar at KEK, Tsukuba, Japan, AUG
Astrophysics Seminar at American Museum of Natural History, NY, MAY
High Energy Astrophysics Seminar at University of Utah, SLC, UT, MAR

2011

Invited Lectures at Universita di Roma "Tor Vergata", Rome, Italy, NOV
Astrophysics Colloquium at Universita di Roma "Tor Vergata", Rome, Italy, NOV
Physics Club Colloquium at Yale University, New Haven, CT, OCT
Harvard/MIT/Tufts Cosmology Colloquium at Havard CfA, Cambridge, MA, SEP
Astronomy Colloquium at Boston University, Boston, MA, SEP
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

2010

Astronomy Colloquium at Yale University, New Haven, CT, DEC
Astronomy Colloquium at Columbia University, New York, NY, OCT
Astrophysics Seminar at University of Pennsylvania, Philadelphia, PA, AUG
Astrophysics Seminar at IPMU, Kashiwa, Japan, JUL
Cosmology Seminar at Yale University, New Haven, CT, MAY

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

2008

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

KIPAC Cosmology Seminar at Stanford University, Palo Alto, CA, OCT
ITC Colloquium at Harvard CfA, Cambridge, MA, SEP
Observational Cosmology Group Seminar at Caltech, Pasadena, CA, MAY
Astronomy Colloquium at University of Michigan, Ann Arbor, MI, MAY
Astrophysics Seminar at Los Alamos National Lab, Los Alamos, NM, APR

2006

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

2004

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

2003

Astrophysics Seminar at National Astronomical Observatory, Japan, JUL
Astrophysics Seminar at University of Tokyo, Japan, JUN
Cosmology Seminar at UC Davis, CA, FEB

Presentations at Conferences & Workshops (with talk titles since 2011)

2020

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"

2019

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"
ICM Physics and Modeling, MPA, Garching, Germany, OCT
Session Organizer: "ICM in Surveys"
Panelist: "ICM Turbulence & Microphysics"
Kavli Summer Program in Astrophysics, CCA, New York, NY, JUL
Invited Talk: "Semi-Analytic Model of the ICM for Multi-Wavelength Cluster Surveys"
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"

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"
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"
Cosmological X-ray Surveys, XXIX IAU General Assembly, Honolulu, HI, AUG
Invited Talk: "Physics and Evolution of 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"
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"
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"
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
Invited Talk: "Cluster Cosmology: Future Challenges & Prospects"
The XVIII Ciclo de Cursos Especiais, Observatorio Nacional, Rio de Janeiro, Brazil, OCT
Invited Lectures: "Cosmology & Astrophysics with Galaxy Clusters"
New Light in Cosmology from the CMB, ICTP, Trieste, Italy, AUG
Invited Talk: "SZ Science in the Planck Era"
Tracing Cosmic Evolution with Clusters of Galaxies, Sesto Pusteria, Italy, JUL
Invited Review: "Cosmological Simulations of Galaxy Clusters"
Feeding, Feedback, and Fireworks, Hamilton Island, Australia, JUN
Invited Talk: "Simulations of Galaxy Cluster Mergers"
ESLAB 2013: The Universe as seen by Planck, Noordwijk, Netherlands, APR

Invited Talk: "SZ Science in the Planck Era"

SnowCluster 2013, Snowbird, UT, MAR

Invited Talk: "Predicting Turbulence in Galaxy Clusters for Astro-H"

CCAT Cosmology Meeting, Caltech, CA, JAN

Invited Talk: "Probing Cluster Physics with CCAT"

2012

The 26th Texas Symposium on Relativistic Astrophysics, Sao Paulo, Brazil, DEC

IUPAP Prize Talk: "A New Era of Cosmology and Astrophysics with Galaxy Clusters"

Galaxy Cluster Cosmology in the Real and Simulated Universe, Ringberg, Germany, NOV

Invited Talk: "The Physics of Cluster Outskirts"

Science with eROSITA and ART-XC aboard Spectrum-RG, Kazan, Russia, SEP

Invited Talk: "Outstanding Challenges in the Era of Precision Cluster Cosmology"

The Physics of the Intracluster Medium: Theory and Computation, Ann Arbor, MI, AUG

Invited Talk: "Nonequilibrium Phenomena in the Outskirts of Galaxy Clusters"

IAU XXVIII General Assembly, Beijing, China, AUG

Invited Review: "Simulations of Cluster and Group Formation"

Cottrell Scholar Conference, Tucson, AZ, JUL

Invited Education Talk: "Computational Cosmology as a Tool for Undergraduate Education"

220th AAS Meeting, Anchorage, AK, JUN

Invited Talk: "Probing Cluster Physics with High-Resolution SZE Imaging and Simulations"

Missing Baryons in the Local Universe, Cervia Milano Marittima, Italy, MAY

Invited Review: "Baryons in the Outskirts of Galaxy Clusters"

Cluster Hot Gas Workshop, Princeton, NJ, APR

Invited Talk: "The Physics of Cluster Scaling Relations"

2011

Tri-State Astronomy Conference, New York, NY, OCT

Invited Talk: "A New Era of Cosmology & Astrophysics with Galaxy Clusters"

Cosmology with X-ray and SZ Observations of Galaxy Clusters, Huntsville, AL, SEP

Invited Talk: "Cosmic Melting Pots in the Virialization Region of Galaxy Clusters"

Structure in Clusters and Groups of Galaxies, Harvard CfA, Boston, MA, JUL

Invited Talk: "Simulating the Cosmic Melting Pot in the Outskirts of Galaxy Clusters"

A New Era for SZ Science, Santander, Spain, JUN

Invited Review: "Simulations of Galaxy Clusters"

Astrophysics and Cosmology with Galaxy Clusters, KITP, Santa Barbara, CA, MAR

Invited Talk: "The SZ Power Spectrum: New Crossroads of Cosmology & Astrophysics"

SnowPAC 2011 winter workshop, Snowbird, UT, JAN

Contributed Talk: "Cosmology and Astrophysics in the Planck Era"

2010

Astro-H workshop, Tokyo University of Science, Tokyo, Japan, DEC

Non-thermal Phenomena in Colliding Galaxy Clusters, Nice, France, NOV

The Physics of the Intracluster Medium: Theory & Computation, Ann Arbor, MI, AUG

Galaxy Clusters: Observations, Physics, and Cosmology, Garching, Germany, JUL

CL J2010: from Massive Galaxy Formation to Dark Energy, IPMU, Japan, JUN

SnowCluster 2010 winter workshop, Snowbird, UT, MAR

2009

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

2007

TASC07 Meeting at UCLA, Los Angeles, CA, NOV
Santa Fe Cosmology Summer Workshop, Santa Fe, NM, JUL
Tracing Cosmic Evolution with Clusters of Galaxies, Sesto Alto Adige, Italy, JUN
Carnegie-Caltech Workshop, Lake Arrowhead, CA, 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

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
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
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
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: Submitted (Under Review)

103. M. Tremmel, A. Wright, A. M. Brooks, F. Munshi, **D. Nagai**, T. Quinn, *The Formation of Ultra-Diffuse Galaxies from Passive Evolution in the RomulusC Galaxy Cluster Simulation*, submitted to MNRAS *(astro-ph/1908.05684)*

102. 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*, submitted to ApJ *(astro-ph/1908.02765)*

101. 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*, submitted to MNRAS *(astro-ph/1904.02318)*

100. 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*, submitted to MNRAS *(astro-ph/1903.08662)*

Refereed Journal Articles: Published

99. 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, in press *(astro-ph/1907.10733)*

98. H. Aung, N. Mandelker, **D. Nagai**, A. Dekel, Y. Birnboim, *Kelvin-Helmholtz Instability in Self-Gravitating Streams*, 2019, MNRAS, in press *(astro-ph/1903.09666)*

97. 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

96. 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

95. 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

94. 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

93. 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

92. 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

91. 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

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

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

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

87. 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

86. 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

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

84. 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

83. 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

82. 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

81. 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

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

79. 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

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

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

76. 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

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

74. 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

73. 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

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

71. 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

70. 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

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

68. 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

67. 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

66. 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

65. 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

64. 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

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

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

61. 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

60. 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

59. 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

58. 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

57. 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

56. 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

55. 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

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

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

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

51. 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

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

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

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

47. 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

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

45. 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

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

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

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

41. 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

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

39. 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

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

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

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

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

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

33. 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

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

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

30. 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

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