

CURRICULUM VITAE

PERSONAL DETAILS

Name: Teppei Okumura Phone: +886-2-2366-5401
Date of birth: June 8th, 1980 E-mail: tokumura@asiaa.sinica.edu.tw
Place of birth: Osaka, Japan Webpage: <http://idv.sinica.edu.tw/teppei/>
Present Address: Institute of Astronomy and Astrophysics, Academia Sinica (ASIAA)
11F of AS/NTU Astronomy-Mathematics Building, No.1, Sec. 4, Roosevelt Rd, Taipei 106319, Taiwan

ACADEMIC APPOINTMENTS

- 2021.7 - present
 - **ASIAA, Taiwan**, Research Fellow [Full Professor equivalency]
 - **Kavli IPMU, The University of Tokyo**, Senior Visiting Scientist
- 2017.8 - 2021.6
 - **Kavli IPMU, The University of Tokyo**, Visiting Scientist
- 2017.1 - 2021.6
 - **ASIAA, Taiwan**, Associate Research Fellow [Associate Professor equivalency]
- 2014.1 - 2016.12
 - **Kavli IPMU, The University of Tokyo**, Project Researcher, advised by Masahiro Takada
- 2009.12 - 2013.12
 - **IEU, Ewha Womans University, Korea**, Postdoctoral Fellow, advised by Uros Seljak
 - **UC Berkeley and LBNL**, Long-term guest (1 year in total), hosted by Uros Seljak
- 2008.4 - 2009.11
 - **Shanghai Astronomical Observatory**, Postdoctoral Fellow, advised by Yipeng Jing
 - **Max Planck Institute for Astrophysics**, Long-term guest (2 months), hosted by Simon White
- 2005.4 - 2008.3
 - **Nagoya University, Japan**, Research Assistant

EDUCATION AND DEGREES

- 2005.4 - 2008.3
 - **Nagoya University, Japan**, Ph.D in Physics, supervised by Prof. Takahiko Matsubara.
- 2003.4 - 2005.3
 - **Nagoya University, Japan**, M.S. in Physics, supervised by Prof. Satoru Ikeuchi
- 1999.4 - 2003.3
 - **Kwansei Gakuin University, Japan**, B.S. in Physics, supervised by Prof. Takashi Okamura

HONORS AND AWARDS

- 2025 - 2029 Academia Sinica Investigator Award, TAIWAN
- 2025 PRL Featured in Physics, American Physical Society (Shim et al. 2025, PRL, 135, 141002)
- 2019 - 2023 Academia Sinica Career Development Award, TAIWAN
- 2018 The PASJ Excellent Paper Award, The Astronomical Society of Japan (Okumura et al. 2016, PASJ, 68, 38)
- 2014 PRD Editor's Suggestion, American Physical Society (Saito et al. 2014, PRD, 90, 123522)
- 2013 Vaidya-Raychaudhuri Postdoctoral Fellowship, Inter-University Centre for Astronomy and Astrophysics (IUCAA), INDIA (declined)

OBTAINED RESEARCH FUNDING

- 2025.1 - 2029.12 Academia Sinica Investigator Award, Taiwan, 7,500,000TWD ($\simeq$ 233,000 USD)
- 2023.8 - 2026.7 National Science and Technology Council (NSTC), Taiwan, 3,555,000TWD ($\simeq$ 120,600 USD)
- 2020.8 - 2023.7 Ministry of Science and Technology (MoST), Taiwan, 3,372,000TWD ($\simeq$ 114,000 USD)
- 2019.1 - 2023.12 Academia Sinica Career Development Award, Taiwan, 10,000,000TWD ($\simeq$ 350,000 USD)
- 2017.10 - 2020.7 Ministry of Science and Technology (MoST), Taiwan, 3,033,000TWD ($\simeq$ 100,500 USD)
- 2014.4 - 2016.3 Start-up grant of the Japan Society for the Promotion of Science (JSPS), 2,500,000JPY ($\simeq$ 25,000 USD)
- 2010.1 - 2010.12 The Research Fellowship for International Young Scientists,
National Natural Science Foundation of China, 250,000RMB ($\simeq$ 37,000 USD), (declined)
- 2006.4 - 2007.3 Research Grant for Young Researchers, Nagoya University, 250,000JPY ($\simeq$ 2,700 USD)

WORKSHOP/CONFERENCE/SCHOOL ORGANIZING ACTIVITIES

2025.12	SOC	Reconstructing the Universe at ASIAA, Taiwan
2025.5	SOC	YITP International School - East Asian Meeting on Large Galaxy Surveys for Cosmology and Galaxy Formation at YITP, Japan
2023.12	SOC chair & LOC chair	Large-scale Parity Violation Workshop at ASIAA, Taiwan
2023.10	SOC	The 2nd Shanghai Assembly on Cosmology and Structure Formation at TDLI, China
2021.12	SOC	YITP workshop on Galaxy shape statistics and Cosmology at Kyoto University
2022.12	SOC	YITP workshop on New Frontiers in Cosmology with the Intrinsic Alignments of Galaxies at Kyoto University
2013.12	Co-organizer	APCTP-IEU Focus program on Cosmology and Fundamental Physics IV, Postech, Korea
2005.8 – 2006.12	Deputy Head	Summer School in Astronomy & Astrophysics (over 400 participants)

MANAGEMENT ACTIVITIES

2026.9 – today	Leader	Theory Group at ASIAA, Taiwan
2025.8 – today	Member	Research manpower (postdoc hiring) committee at ASIAA, Taiwan
2024.8 – 2025.7	Chair	
2019.1 – 2020.3	Member	
2024.8 – today	Member	Mentoring committee at ASIAA, Taiwan
2022.9 – today	Member	Appointment and promotion committee at ASIAA, Taiwan
2022.9 – today	Member	Faculty Search committee at ASIAA, Taiwan
2022.9 – 2024.8	Member	Computing committee at ASIAA, Taiwan - Supervising 7 computing staff members (2020.9-2021.10)
2020.9 – 2022.8	Chair / Manager	
2019.1 – 2020.12	Coordinator	Joint colloquium committee at ASIAA/NTU/NTNU/LeCosPA, Taiwan
2017.9 – 2018.8	Chair	weekly-lunch seminar at ASIAA, Taiwan
2017.1 – 2022.8	Member	Colloquium committee at ASIAA, Taiwan

ACADEMIC SOCIETY AND CONTRIBUTIONS

- Membership : Astronomical Society of Japan
- Journal Referee for journal papers: Nature Astronomy (UK); Physical Review Letters (USA); Physical Review D (USA); ApJ (Astrophysical Journal, USA); ApJ Letters (USA); JCAP (Journal of Cosmology and Astroparticle Physics, Italy); MNRAS (Monthly Notices of the Royal Astronomical Society, UK); A&A (Astronomy & Astrophysics, France); PTP (Progress of Theoretical Physics, Japan); EPJC (European Physical Journal C, Europe); CQG (Classical and Quantum Gravity, UK)
- Other referee
 - Observing proposal referee for: *Subaru Telescope*
 - External reviewer for a faculty candidate at National University in Taiwan
 - Grant proposal / Award reviewers for : *MoST grant* and *Research Award for Physics Society of Taiwan*
- Thesis defense committee
 - Takuya Inoue, National Taiwan University (Ph.D., February 2025, Advisors: Me and Dr. Wei-Hao Wang)
 - Yao-Tsung Chuang, National Taiwan University (Master, July 2022, Advisors: Me and Dr. Yen-Ting Lin)
 - Yu-Han Tseng, National Taiwan University (Master, May 2020, Advisor: Prof. Pisin Chen)
 - Shu-Rong Chen, National Taiwan University (Ph.D., July 2019, Advisor: Prof. Tzi-Hong Chiueh)
 - Chien-Ting Chen, National Taiwan University (Ph.D., July 2019, Advisor: Prof. Pisin Chen)
 - KaHou Leong, National Taiwan University (Master, January 2018, Advisor: Prof. Tzi-Hong Chiueh)
 - James Chan, National Taiwan University (Ph.D., August 2017, Advisor: Prof. Tzi-Hong Chiueh)

TEACHING EXPERIENCE

2025	Invited Lecturer for YITP International School - East Asian Meeting on Large Galaxy Surveys for Cosmology, Kyoto University, Japan, June 2-5, 2025. Title: “Galaxy redshift survey”
2021 - 2023, 2017 - 2019	Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July: “ <i>Cosmology</i> ”
2019, 2022	Invited Lecturer for Student Seminar at ASIAA, Taiwan. Lecture title: “ <i>Probing dark energy with large-scale structure of the universe</i> ” (2022) Lecture title: “ <i>Cosmology with large-scale structure of the Universe</i> ” (2019)
2019	Supervising of intern student from Vietnam “Finite volume effect of the velocity power spectrum” (3 months)
2018	Invited Lecturer for undergraduate course of cosmology at NTHU, Taiwan (3 hours), May 8, 2018. Lecture title: “ <i>Probing the accelerating expansion of the universe with large-scale structure</i> ”
2011	Tutoring of one graduate student (spring semester) for the course “Modern Cosmology”, with a project “Sunyaev-Zel’dovich effect” at Ewha Womans University, Korea

POSTDOCTORAL FELLOWS MENTORED

William Luke Matthewson	2026.12-	Distinguished postdoc, ASIAfA	Project “TBD”
Mohit Raj Sah	2026.9-	Regular postdoc, ASIAA	Project “TBD”
Jun-Sung Moon	2025.6-	Distinguished postdoc, ASIAA	Project “Galaxy spin alignment” [paper 1]
Yusuke Mikura	2025.4- 2026.3 2026.4-	Regular postdoc, ASIAA Distinguished postdoc, ASIAA	Project “GWs with large-scale structure” [paper 1]
Ryuichiro Hada	2024.9-	Regular postdoc, ASIAA	Project “Reconstruction of halo clustering” [paper 1]
Junsup Shim	2022.7- 2026.2	Distinguished postdoc, ASIAA	Project “Galaxy IA and parity violation” [paper 1 2 3]
Aniket Agrawal	2018.11-2020.10	Regular postdoc, ASIAA	Project “Standard candles and sirens” [paper 1 2 3]

STUDENTS MENTORED

Sy-Yun Pu	2022-2024	BS, NTHU (w/ A. Cooper*)	Project “High-redshift galaxy clustering” [paper 1]
Takuya Inoue	2020-2025	Ph.D., NTU (w/ W.-H. Wang*)	Thesis “Cosmological Test of Gravity with Asymmetric Galaxy Clustering and Intrinsic Alignments” [paper 1, 2,3]
Yao-Tsung Chuang	2020-2022 2022-2023 2023-2025	M.Sc., NTU (w/ Y.-T. Lin*) Post-M.Sc. R.A., ASIAA Ph.D., NTU	Thesis “Intrinsic alignments of dark matter halos in $f(R)$ gravity simulations” [paper] Thesis “TBD” [paper]
Shing Lau	2022	M.Sc., NTU	
Ngoc Minh Le	2019 2020-2022	Intern, ASIAA M.Sc., NTHU (w/ T. Goto*)	Project “Velocity power spectrum of dark matter halos”
Sheng-Chieh Lin	2019-2019	Post-M.Sc. R.A., ASIAA	Topic “Halo occupation distribution of galaxies” [paper 1, 2]
Shan-Chang Lin	2018-2018	Post-M.Sc.. R.A., ASIAA	
Minji Oh	2011-2012	M.Sc., Ewha U. (w/ C. Kim* & U. Seljak)	Project “Redshift-space distortions” [paper 1, 2]

* Official supervisors at universities

RECOMMENDATION LETTERS FOR JOB APPLICATIONS (alphabetical)

- Faculty position: I-Non Chiu, Ken Osato, Shouvik Roy Choudhury, Junsup Shim, Naonori Sugiyama
- Postdoc position: Aniket Agrawal, Kazuyuki Akitsu, I-Non Chiu, Takuya Inoue, Yusuke Mikura, Minji Oh
- Graduate school: Yao-Tsung Chuang, Takuya Inoue, Ngoc Minh Le, Sy-Yun Pu

PRESENTATIONS

Invited conference and workshop talks

- [1] “Extracting parity-violating gravitational waves from the large-scale structure of the universe,” and “Constraining H_0 with standard candles and sirens”
GW-CMB 2026, NCU, Taoyuan, Taiwan (May, 2026)

- [2] “Developing nonlinear RSD model with Uros”
From Pen and Paper to Petaflops: Cosmology’s 30-Year Transformation (Invitation-only symposium), UC Berkeley / Salesforce Towar, San Francisco, USA (May, 2026)
- [3] “Intrinsic galaxy alignment cosmology”
Frontiers of Precision Cosmology: From the Early Universe to Observational Tensions, KEK, Tsukuba, Japan (March, 2026)
- [4] “Splashback radius of nonspherical dark matter halos and the cosmological implications”
Expanding the boundaries of dark matter halo, Shanghai Jiao Tong University, China (May, 2025)
- [5] “Extracting parity-violating gravitational waves from projected tidal force tensor in three dimensions”
APCTP Workshop on Gravitational Waves 2025, ASIoP, Taiwan (April, 2025)
- [6] “Angular clustering and host halo properties of emission line galaxies at $z > 1$ in the Subaru HSC survey ”
The 10th KIAS Workshop on Cosmology and Structure Formation, Korea Institute for Advanced Study, Korea (October, 2022)
- [7] “Tightening geometric and dynamical constraints on dark energy and gravity with galaxy intrinsic alignment”
IA Cosmology Workshop, YITP, Kyoto University, Japan (November, 2021)
- [8] “Intrinsic alignment of galaxy shapes as new dynamical and geometric probes of cosmology”
The 9th KIAS Workshop on Cosmology and Structure Formation, Korea Institute for Advanced Study, Korea (November, 2020)
- [9] “Intrinsic alignments of halo orientations with density and velocity fields at BAO scales and beyond”
The first Shanghai Assembly on Cosmology and Galaxy Formation, Shanghai Jiao Tong University, China, (November, 2019)
- [10] “Galaxy clustering analysis of the Subaru FastSound survey”
Cosmology workshop on galaxy redshift surveys, NAOJ, Japan (August, 2019)
- [11] “Large-scale intrinsic alignments of halo orientations with velocity field”
PTchat@Kyoto, YITP, Kyoto University, Japan (April , 2019)
- [12] “Cosmology with large-scale structure using Subaru: FMOS FastSound and PFS surveys”
EAO Subaru Science Workshop, KASI, Korea (January, 2019)
- [13] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
The 8th KIAS Workshop on Cosmology and Structure Formation, Korea Institute for Advanced Study, Korea (November, 2018)
- [14] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
Cosmology Frontier in Particle Physics: Astroparticle Physics and Early Universe, National Taiwan University, Taiwan (September, 2018)
- [15] “Recent progresses on studies of the splashback radius of dark matter halos” **[Review talk]**
Workshop on dark matter halos, NAOJ, Japan (August, 2018)
- [16] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
5th Korea-Japan workshop on Dark Energy, KASI, Korea (August, 2018)
- [17] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
The Nonlinear Universe 2018, Smartno, Slovenia (July, 2018)

- [18] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
Sesto 2018 workshop on galaxy clustering, Sexten Center for Astrophysics, Italy (July 2018)
- [19] “Intrinsic Alignments and Splashback Radius of Dark Matter Halos from Cosmic Density and Velocity Fields”
The Nonlinear Universe, Smartno, Slovenia (July, 2017)
- [20] “Reconstruction of halo power spectrum from redshift-space galaxy distribution”
2017 Rencontres du Vietnam on Cosmology conference, Quy Nhon, Vietnam (July, 2017)
- [21] “Baryon acoustic oscillations and the structure of the Universe at the highest redshifts” **[Review talk]**
Astronomical Distance Determination in the Space Age, International Space Science Institute-Beijing, China (May, 2016)
- [22] “New constraint on gravity theory at $z \sim 1.4$ from the Subaru FMOS/FastSound galaxy redshift survey”
3rd Korean-Japan Workshop on Dark Energy, Korea Institute for Advanced Study, Korea (April, 2016)
- [23] “Modeling nonlinear power spectrum of galaxies in redshift space”
Measuring and Modelling Redshift-Space Distortions in Galaxy Surveys, Sexten Center for Astrophysics, Sexto, Italy (July, 2014)
- [24] “Galaxy Survey and Redshift-space distortions,” **[Review talk]**
2nd Observational Cosmology Workshop, National Astronomical Observatory of Japan (December, 2013)
- [25] “Distribution function approach to redshift space distortions ”
The 5th KIAS Workshop on Cosmology and Structure Formation, Korea Institute for Advanced Study, Korea (October, 2012)
- [26] “Distribution function approach to redshift space distortions: N-body simulations ”
Perturbative approaches to redshift space distortions, University of Zurich, Switzerland (July, 2012)
- [27] “Distribution function approach to redshift space distortions: N-body simulations ”
WKYC 2012 Conference , Daejeon, Korea (June, 2012)
- [28] “Numerical analysis of redshift-space distortions in galaxy redshift surveys”
The KASI-APCTP joint mini-workshop on Science and Technology of BigBOSS , Jeju, Korea (May, 2012)
- [29] “Dark Energy and Modified Gravity from Large-scale Structure”
QGC2010 NIMS-APCTP Joint International Workshop String Theory and Cosmology, Daejeon, Korea (September, 2010)
- [30] “Systematic effects on determination of dark energy and modified gravity from galaxy surveys”
Recent Progresses in Dark-Universe and Astrophysics, APCTP-Seoul-Branch, Korea (August, 2010)
- [31] “3D Galaxy Clustering (BAO)” **[Review talk]**
National Cosmology Workshop, Institute for High Energy Physics and National Astronomical Observatory of China, Beijing, China (December, 2008)
- [32] “Large-Scale Anisotropic Correlation Function of the SDSS”
Conference for Hyper-Suprime Cam, Mie, Japan (March, 2008)

Invited colloquium and seminar talks

- [1] “Cosmology with Galaxy Shapes: Intrinsic Alignment as a Probe of Fundamental Physics”
RESCEU Colloquium, The University of Tokyo, Tokyo, Japan (June 2026)

- [2] “Extracting the Imprint of Gravitational Waves from Galaxy Alignments in the Large-Scale Structure”
KEK Theory Seminar, KEK, Tsukuba, Japan (November 2025)
- [3] “Probing the accelerating universe with galaxy redshift surveys”
NCHU Seminar, National Chung Hsing University, Taiwan (December 2023)
- [4] “The First Constraints on Growth Rate from Intrinsic Alignment of Galaxy Orientation”
Invited online seminar, “We MUST Talk”, Beijing, China (April 2023)
- [5] “Probing the accelerating universe with galaxy redshift surveys”
Colloquium at National Astronomical Research Institute of Thailand (NARIT), Chiang Mai, Thailand (August 2022)
- [6] “Tightening geometric and dynamical constraints on dark energy and gravity: galaxy clustering, intrinsic alignment and kinetic Sunyaev-Zel’dovich effect”
Colloquium at Department of Astronomy, Shanghai Jiao Tong University, China (October 2021)
- [7] “Intrinsic alignments of cosmic density and velocity fields as a cosmological probe”
NTHU IoA Colloquium, National Tsing-Hua University, Taiwan (October 2019)
- [8] “Large-scale intrinsic alignments of dark matter halo orientations with velocity field”
Cosmology seminar at Stanford, Stanford University, USA (April 2019)
- [9] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
LeCosPA Cosmology and Particle Astrophysics Seminar, National Taiwan University, Taiwan (May, 2018)
- [10] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”
High Energy Theory Group Seminar, Academia Sinica Institute of Physics, Taiwan (May, 2018)
- [11] “Reconstructing power spectrum of dark matter halos from galaxy distribution”
IANCU Colloquium, National Central University, Taiwan (November, 2017)
- [12] “Precision cosmology with galaxy redshift surveys”
LeCosPA Cosmology and Particle Astrophysics Seminar, National Taiwan University, Taiwan (May, 2017)
- [13] “Theoretical modeling of redshift space distortions for galaxies toward precision cosmology”
Cosmology seminar, Yale University, USA (December, 2016)
- [14] “New constraint on gravity theory at $z \sim 1.4$ from the Subaru FMOS galaxy redshift survey (FastSound)”
Astronomy Colloquium, The University of Tokyo, Japan (February, 2016)
- [15] “Observational and theoretical studies of large-scale structure of the Universe using galaxy redshift surveys”
ASIAA Colloquium, Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan (Dec 2, 2015)
- [16] “Probing dark energy and modified gravity from large-scale structure of the Universe”
Tsinghua Center for Astrophysics Colloquium, Tsinghua University, Beijing, China (March, 2015)
- [17] “Modeling nonlinear power spectrum of dark matter halos and galaxies in redshift space”
Cosmology seminar, YITP, Kyoto University, Japan (March 2015)
- [18] “Nonlinear velocity statistics and redshift-space distortions in peculiar velocity surveys”
Astronomy-Cosmology-Particle Physics (ACP) Seminar, Kavli IPMU, U. of Tokyo, Japan (February, 2014)
- [19] “Intrinsic ellipticity correlation of luminous red galaxies on large scales”
Berkeley cosmology seminar, UC Berkeley, USA (December, 2009)

Selected contributed talks

- [1] “Extracting parity-violating gravitational waves from the large-scale structure of the universe”
Japan Gravitational Wave Community 2026 Workshop, The University of Tokyo, Japan (May, 2026)
- [2] “Extracting parity-violating gravitational waves from projected tidal force tensor”
Annual Conference in Astronomical Society of Japan, Yamaguchi University, Japan (September, 2025)
- [3] “Constraining cosmology with galaxy intrinsic alignment”
Theory and Data Analysis Challenges for Cosmological Large-Scale Structure Observations, YITP, Kyoto, Japan (November 2024)
- [4] “Extracting parity-violating gravitational waves from projected tidal force tensor in three dimensions”
Cosmology in the Adriatic – From PT to AI, Split Croatia (July 2024)
- [5] “Extracting gravitational waves from tidal tensor field: Application to galaxy intrinsic alignments”
Large-scale parity violation workshop, ASIAA, Taiwan (December 2023)
- [6] “Constraints on growth rate with intrinsic ellipticity correlations of SDSS BOSS galaxies”
IA cosmology workshop, YITP, Kyoto University, Japan (Dec 2022)
- [7] “Tightening geometric and dynamical constraints on dark energy and gravity: galaxy clustering, intrinsic alignment and kinetic Sunyaev-Zel’dovich effect”
Observational cosmology workshop, online, Japan (November, 2021)
- [8] “Intrinsic alignments of halo orientations with velocity field and the baryon acoustic oscillation features”
Annual Conference in Astronomical Society of Japan, Kumamoto Univ., Japan (September, 2019)
- [9] “Splashback radius of non-spherical dark matter halos from cosmic density and velocity fields”
Annual Conference in Astronomical Society of Japan, Chiba Univ., Japan (March, 2018)
- [10] “Reconstruction of power spectrum of dark matter halos from galaxy distribution in redshift surveys”
Annual Conference in Astronomical Society of Japan, Ehime Univ., Japan (September, 2016)
- [11] “The Subaru FMOS galaxy redshift survey (FastSound). New constraint on gravity theory from redshift space distortions at $z \sim 1.4$ ”
Subaru Users’ Meeting FY2015, Atami, Japan (January, 2016)
- [12] “Reconstructing halo power spectrum from redshift-space galaxy distribution”
Theoretical and Observational Progress on Large-scale Structure of the Universe: MPA/ESO/MPE/Excellence Cluster Universe Joint Conference 2015, ESO, Garching, Germany (July, 2015)
- [13] “Peculiar velocities in redshift space: formalism, N-body simulations and perturbation theory”
The 10th Sino-German Workshop on Galaxy Formation and Cosmology, Xi’an, China (May, 2014)
- [14] “Nonlinear velocity statistics and redshift-space distortions in peculiar velocity surveys”
CosKASI Conference 2014, Korea Astronomy and Space Science Institute, Korea (April, 2014)
- [15] “Formulation of velocity statistics in redshift space”
Annual Conference in Astronomical Society of Japan, International Christian Univ., Japan (March, 2014)
- [16] “Peculiar velocity statistics in real and redshift space: N-body simulations and perturbation theory”
LSS13 Theoretical Challenges in Large Scale Structure, Ascona, Switzerland (July, 2013)
- [17] “Peculiar velocity statistics in real and redshift space: N-body simulations and perturbation theory”
IEU Cosmology Conference 2013, IEU Ewha Womans University, Korea (June, 2013)

- [18] “Modeling redshift-space power spectrum using phase space distribution function approach”
Annual Conference in Astronomical Society of Japan, Kagoshima University, Japan (September, 2011)
- [19] “Intrinsic ellipticity correlation of luminous red galaxies”
Annual Conference in Astronomical Society of Japan, Osaka Prefecture University, Japan (March, 2009)
- [20] “Intrinsic Ellipticity Correlation of Luminous Red Galaxies and Misalignment with their Host Dark Matter Halos”
The 8th Sino-German workshop on galaxy formation and cosmology, Kunming, China (February, 2009)
- [21] “Systematic Effects on Determination of the Growth Factor from Redshift-space Distortions”
IEU Workshop on Cosmology and Fundamental Physics, IEU Ewha Womans University, Korea, (May, 2010)
- [22] “Large-Scale Anisotropic Correlation Function of SDSS Luminous Red Galaxies”
1st Korea-Japan Workshop on Galaxy Evolution, Yonsei University, South Korea (February, 2008)
- [23] “Anisotropic Correlation Function of Large-scale Galaxy Distribution from the SDSS LRG Sample”
Outstanding Questions for the Standard Cosmological Model, Imperial College London, UK (March, 2007)
- [24] “Anisotropic Correlation Function in the LRG”
SDSS-II Collaboration Meeting, Seoul National University, Korea (September, 2006)
- [25] “Cosmological Parameters from Anisotropy of SDSS LRG Correlation Function”
SDSS-II Collaboration Meeting, Santa Fe, USA (March, 2006)
- [26] “Cosmological Analysis with Baryonic Acoustic Oscillations in the Correlation Function of SDSS Galaxies and Future Galaxy Redshift Surveys”
The 1st China-Japan-Korea Joint Workshop on Cosmology, Large Scale Structure and Galaxy Formation: Numerical Simulations, Shanghai, China (November, 2005)
- [27] “Cosmological Analysis with Anisotropy of Correlation Function of SDSS Galaxies”
Annual Conference in Astronomical Society of Japan, Sapporo, Hokkaido, Japan (October, 2005)

Media press release

- [1] “Decoding the gravitational evolution of dark matter halos” on January 13th, 2015
 - Place : Kavli IPMU, The University of Tokyo
 - Reference : Saito et al. (2014), published by Physical Review D, editor’s suggestion.
- [2] “New test by deepest galaxy map finds Einstein’s theory stands true” on May 11th, 2016
 - Place : (1) Kavli IPMU, The University of Tokyo; (2) Astronomy department, The University of Tokyo; (3) Physics department, Kyoto University; (4) National Astronomical Observatory of Japan; (5) Astronomy department, Tohoku University
 - Reference : Okumura et al. (2016), published by PASJ.
- [3] “General Relativity Verified from The Orientation of Galaxies Separated by Cosmological Distances: A New Means to Explore The Universe” on April 13th, 2023
 - Place : ASIAA and YITP, Kyoto University
 - Reference : Okumura & Taruya (2023), published by ApJ Letters.

LIST OF PUBLICATIONS

Refereed Papers

- Number of publications: **86** [**3440** citations in Google Scholar and **2946** citations in INSPIRES]
- Number of first and second authored publications: **56**.
- 1st-author paper stat.: **1** paper with > 300 citations, **3** with > 200 citations and **4** with > 120 citations
- * = corresponding author

- [1] Y. Mikura*, **T. Okumura**, I. Obata, M. Shiraishi
“Dipolar power asymmetry in wide-angle correlations of galaxy density, velocity and ellipticity”
Submitted to *Journal of Cosmology and Astroparticle Physics* (2026) [arXiv:2608.19039][ADS][INSPIRE]
- [2] K. Minato*, A. Taruya, **T. Okumura**, M. Shiraishi
“Constraining Primordial Power Asymmetry from Galaxy Clustering and Peculiar Velocity Information”
Submitted to *Publication for Astronomical Society of Japan* (2026) [arXiv:2608.14170][ADS][INSPIRE]
- [3] **T. Okumura***
“Joint Geometric and Dynamical Constraints on Cosmology from Anisotropies in Galaxy Intrinsic-Alignment Correlations”
Submitted to *Physical Review Letters* (2026) [arXiv:2608.06927][ADS][INSPIRE]
- [4] R. Hada*, **T. Okumura**
“Cosmological inference with halo clustering reconstructed from the redshift-space galaxy distribution”
Submitted to *Physical Review D* (2026) [arXiv:2604.11694][ADS][INSPIRE]
- [5] Y.-T. Chuang, **T. Okumura***, T. Nishimichi
“Large-scale halo velocity correlations and the impact of finite simulation volumes”
Submitted to *Physical Review D Letters* (2026) [arXiv:2602.04485][ADS][INSPIRE]
- [6] S. Ishikawa*, A. Taruya, T. Nishimichi, **T. Okumura**, S. Tanaka
“SHAPE: cosmology with cluster halo intrinsic alignments from subhalo distributions”
Submitted to *Physical Review D* (2025) [arXiv:2505.01588][ADS][INSPIRE]
- [7] K. Minato*, A. Taruya, **T. Okumura**, M. Shiraishi
“Probing dipolar power asymmetry with galaxy clustering and intrinsic alignments”
Physical Review D **114** (2026) 043534 [arXiv:2505.19941][ADS][INSPIRE] (2026/09)
- [8] K. Osato*, **T. Okumura**
“Clustering of emission line galaxies with IllustrisTNG – II. cosmology challenge with anisotropic correlation functions and ELG-halo connections”
MNRAS **551** (2026) 1-16 [arXiv:2602.01925][ADS][INSPIRE] (2026/09)
- [9] Y. Mikura*, **T. Okumura**, M. Sasaki
“Imprints of gravitational-wave polarizations on projected tidal tensor in three dimensions”
Journal of Cosmology and Astroparticle Physics **04** (2026) 061 [arXiv:2507.23302][ADS][INSPIRE](2026/04)
- [10] J.-S. Moon*, **T. Okumura**
“Galaxy Spin Alignment with Tidal Fields in the SDSS-IV MaNGA Survey”
Astrophysical Journal Letters **995** (2025) L8 [arXiv:2510.23741][ADS][INSPIRE] (2025/12)

- [11] S. Roy Choudhury*, **T. Okumura**, K. Umetsu
 “Cosmological constraints on non-phantom dynamical dark energy with DESI Data Release 2 Baryon Acoustic Oscillations: A 3σ + lensing anomaly”
Astrophysical Journal Letters **994** (2025) L26 [arXiv:2509.26144][ADS][INSPIRE] (2025/11)
- [12] J. Shim*, U.-L. Pen, H.-R. Yu, **T. Okumura**
 “Probing vector chirality in the early Universe”
Physical Review Letters **135** (2025) 141002 [arXiv:2406.06080][ADS][INSPIRE] (2025/10)
- [13] **T. Okumura***
 “Evidence for Intrinsic Galaxy Alignments in Ellipticity Autocorrelations out to $100h^{-1}\text{Mpc}$ from SDSS Galaxies with DESI Imaging”
Astrophysical Journal Letters **990** (2025) L19 [arXiv:2507.09756][ADS][INSPIRE] (2025/09)
- [14] S.-Y. Pu*, **T. Okumura**, C.-C. Chen, T. Nishimichi, K. Akitsu
 “Cosmological constraints from N-body simulations for future spectroscopic galaxy surveys at $2 \leq z \leq 3$ ”
Physical Review D Letters **112** (2025) L041302 [arXiv:2410.02524][ADS][INSPIRE] (2025/08)
- [15] J. Shim*, **T. Okumura**, A. Taruya
 “Improving cosmological constraints via galaxy intrinsic alignment in full-shape analysis”
Physical Review D **111** (2025) 123551 [arXiv:2412.08151][ADS][INSPIRE] (2025/06)
- [16] S. Masaki*, M. Shiraishi, T. Nishimichi, **T. Okumura**, S. Yokoyama
 “First confirmation of anisotropic bias from statistically anisotropic matter distributions”
Physical Review D Letters **111** (2025) L101301 [arXiv:2409.12004][ADS][INSPIRE] (2025/05)
- [17] A. Taruya*, T. Kurita, **T. Okumura**
 “Improving redshift-space power spectra of halo intrinsic alignments from perturbation theory”
Physical Review D **111** (2025) 103518 [arXiv:2409.06616][ADS][INSPIRE] (2025/05)
- [18] S. Ishikawa*, **T. Okumura**, M. Hayashi, T. T. Takeuchi
 “A new constraint on galaxy-halo connections of [O II] emitters via HOD modelling with angular clustering and luminosity functions from the Subaru HSC survey”
MNRAS **539** (2025) 2323-2346 [arXiv:2412.19898][ADS][INSPIRE] (2025/05)
- [19] J. Shim*, **T. Okumura**, A. Taruya
 “Squeezing Full-Shape Dynamical Dark Energy Constraints with Galaxy Alignments”
Astrophysical Journal Letters **985** (2025) L14 [arXiv:2412.08150][ADS][INSPIRE] (2025/05)
- [20] T. Inoue*, **T. Okumura**, S. Saga, A. Taruya
 “Testing local position invariance with odd multipoles of galaxy clustering statistics”
Physical Review D Letters **111** (2025) L081303 [arXiv:2412.13701][ADS][INSPIRE] (2025/04)
- [21] M. Tonegawa*, **T. Okumura**, M. Hayashi
 “Intrinsic Alignments and Spin Correlations of [OII] Emitters at $z = 1.2$ and $z = 1.5$ from HSC Narrow-band Survey”
Publication for Astronomical Society of Japan **77** (2025) 389-402 [arXiv:2408.11462][ADS][INSPIRE] (2025/04)
- [22] T. Inoue*, **T. Okumura**, S. Saga, A. Taruya
 “Information content in anisotropic cosmological fields: Impact of different multipole expansion scheme for galaxy density and ellipticity correlations”
Physical Review D **111** (2025) 023507 [arXiv:2406.19669][ADS][INSPIRE] (2025/01)

- [23] S. Roy Choudhury*, **T. Okumura**
 “Updated cosmological constraints in extended parameter space with Planck PR4, DESI BAO, and SN: dynamical dark energy, neutrino masses, lensing anomaly, and the Hubble tension”
Astrophysical Journal Letters **976** (2024) L11 [arXiv:2409.13022][ADS][INSPIRE] (2024/11)
- [24] **T. Okumura***, M. Sasaki
 “Extracting parity-violating gravitational waves from projected tidal force tensor in three dimensions”
Journal of Cosmology and Astroparticle Physics **10** (2024) 060 [arXiv:2405.04210][ADS][INSPIRE] (2024/10)
- [25] E. van Kampen*, T. Bakx, C. De Breuck, C.-C. Chen, H. Dannerbauer, B. Magnelli, F. M. Montenegro-Montes, **T. Okumura**, S.-Y. Pu, M. Rybak, A. Saintonge, C. Ciccone, E. Hatziminaoglou, J. Hilhorst, P. Klaassen, M. Lee, C. C. Lovell, A. Lundgren, L. Di Mascolo, T. Mroczkowski, L. Sommovigo, M. Booth, M. A. Cordiner, R. Ivison, D. Johnstone, D. Liu, T. J. Maccarone, M. Smith, A. E. Thelen, S. Wedemeyer
 “Atacama Large Aperture Submillimeter Telescope (AtLAST) Science: Surveying the distant Universe”
Open Research Europe **4** (2024) 122 [arXiv:2403.02806][ADS][INSPIRE] (2024/06)
- [26] **T. Okumura***, A. Taruya, T. Kurita, T. Nishimichi
 “Nonlinear redshift space distortion in halo ellipticity correlations: Analytical model and N-body simulations”
Physical Review D **109** (2024) 103501 [arXiv:2310.07384][ADS][INSPIRE] (2024/05)
- [27] S. Ishikawa*, **T. Okumura**, Takahiro Nishimichi
 “Mock Observatory: two thousand lightcone mock catalogues of luminous red galaxies from the Hyper Suprime-Cam Survey for the cosmological large-scale analysis”
MNRAS **529** (2024) 1839 [arXiv:2308.03871][ADS][INSPIRE] (2024/04)
- [28] S. Saga*, M. Shiraishi, K. Akitsu, **T. Okumura**
 “Imprints of primordial magnetic fields on intrinsic alignments of galaxies”
Physical Review D **109** (2024) 043520 [arXiv:2312.16316][ADS][INSPIRE] (2024/02)
- [29] N. Chaurasiya*, S. More, S. Ishikawa, S. Masaki, D. Kashino, **T. Okumura**
 “Galaxy-dark matter connection of photometric galaxies from the HSC-SSP Survey: Galaxy-galaxy lensing and the halo model”
MNRAS **527** (2024) 5265 [arXiv:2307.03915][ADS][INSPIRE] (2024/01)
- [30] K. Akitsu*, Y. Li, **T. Okumura**
 “Quadratic shape biases in three-dimensional halo intrinsic alignments”
Journal of Cosmology and Astroparticle Physics **08** (2023) 068 [arXiv:2306.00969][ADS][INSPIRE] (2023/08)
- [31] M. Shiraishi*, **T. Okumura**, K. Akitsu
 “Statistical anisotropy in galaxy ellipticity correlations”
Journal of Cosmology and Astroparticle Physics **08** (2023) 013 [arXiv:2303.10890][ADS][INSPIRE] (2023/08)
- [32] S. Arai*, K. Aoki, Y. Chinone, R. Kimura, T. Kobayashi, H. Miyatake, D. Yamauchi, S. Yokoyama, K. Akitsu, T. Hiramatsu, S. Hirano, R. Kase, T. Katsuragawa, Y. Kobayashi, T. Namikawa, T. Nishimichi, **T. Okumura**, M. Shiraishi, M. Shirasaki, T. Sunayama, K. Takahashi, A. Taruya, J. Tokuda
 “Cosmological gravity probes: connecting recent theoretical developments to forthcoming observations”
Progress of Theoretical and Experimental Physics **2023** (2023) 072E01 [arXiv:2212.09094][ADS][INSPIRE] (2023/07)
- [33] K. Akitsu*, Y. Li, **T. Okumura**
 “Gravitational wave fossils in nonlinear regime: halo tidal bias and intrinsic alignments from gravitational wave separate universe simulations”
Physical Review D **107** (2023) 063531 [arXiv:2209.06226][ADS][INSPIRE] (2023/03)

- [34] **T. Okumura***, A. Taruya
 “First Constraints on Growth Rate from Redshift-space Ellipticity Correlations of SDSS Galaxies at $0.16 < z < 0.70$ ”
Astrophysical Journal Letters **945** (2023) L30 [arXiv:2301.06273][ADS][INSPIRE] (2023/03)
- [35] K. Osato*, **T. Okumura**
 “Clustering of emission line galaxies with IllustrisTNG I.: fundamental properties and halo occupation distribution”
MNRAS **519** (2023) 1771 [arXiv:2206.08678][ADS][INSPIRE] (2023/02)
- [36] S. Saga*, **T. Okumura**, A. Taruya, T. Inoue
 “Relativistic distortions in galaxy density-ellipticity correlations: gravitational redshift and peculiar velocity effects”
MNRAS **518** (2023) 4976 [arXiv:2207.03454][ADS][INSPIRE] (2023/02)
- [37] Y.-T. Chuang, **T. Okumura***, M. Shirasaki
 “Distinguishing between Λ CDM and $f(R)$ gravity models using halo ellipticity correlations in simulations”
MNRAS **515** (2022) 4464-4470 [arXiv:2111.01417][ADS][INSPIRE] (2022/09)
- [38] **T. Okumura***, A. Taruya
 “Tightening geometric and dynamical constraints on dark energy and gravity: galaxy clustering, intrinsic alignment and kinetic Sunyaev-Zel’dovich effect”
Physical Review D **106** (2022) 043523 [arXiv:2110.11127][ADS][INSPIRE] (2022/08)
- [39] M. TONEGAWA, **T. Okumura***
 “First Evidence of Intrinsic Alignments of Red Galaxies at $z \sim 1$: Cross-correlation between CFHTLenS and FastSound Samples”
Astrophysical Journal Letters **924** (2022) L3 [arXiv:2109.14297][ADS][INSPIRE] (2022/01)
- [40] S. Ishikawa*, **T. Okumura**, M. Oguri, S.-C. Lin
 “Halo-model analysis of the clustering of photometric luminous red galaxies at $0.10 \leq z \leq 1.05$ from the Subaru Hyper Suprime-Cam Survey”
Astrophysical Journal **922** (2021) 23 [arXiv:2103.08628][ADS][INSPIRE] (2021/11)
- [41] **T. Okumura***, M. Hayashi, I.-N. Chiu, Y.-T. Lin, K. Osato, B.-C. Hsieh, S.-C. Lin
 “Angular clustering and host halo properties of [OII] emitters at $z > 1$ in the Subaru HSC survey”
Publication for Astronomical Society of Japan **73** (2021) 1186-1207 [arXiv:2012.12224][ADS][INSPIRE] (2021/08)
- [42] M. Shiraishi*, K. Akitsu, **T. Okumura**
 “Alcock-Paczynski effects on wide-angle galaxy statistics”
Physical Review D **103** (2021) 123534 [arXiv:2103.08126][ADS][INSPIRE] (2021/06)
- [43] M. Shiraishi*, A. Taruya, **T. Okumura**, K. Akitsu
 “Wide-angle effects on galaxy ellipticity correlations”
MNRAS Letters **503** (2021) L6-L10 [arXiv:2012.13290][ADS][INSPIRE] (2021/05)
- [44] K. Akitsu*, Y. Li, **T. Okumura**
 “Cosmological simulation in tides: power spectrum and halo shape responses, and shape assembly bias”
Journal of Cosmology and Astroparticle Physics **04** (2021) 041 [arXiv:2011.06584][ADS][INSPIRE] (2021/04)
- [45] M. Shiraishi*, **T. Okumura**, K. Akitsu
 “Minimum variance estimation of statistical anisotropy via galaxy survey”
Journal of Cosmology and Astroparticle Physics **03** (2021) 039 [arXiv:2009.04355][ADS][INSPIRE] (2021/03)
- [46] A. Agrawal*, **T. Okumura**, T. Futamase
 “Standard candles and sirens rescue H_0 ”
Astrophysical Journal **904** (2020) 169 [arXiv:2008.00869][ADS][INSPIRE] (2020/12)

- [47] I.-N. Chiu*, **T. Okumura**, M. Oguri, A. Agrawal, K. Umetsu, Y.-T. Lin
 “A clustering-based self-calibration of the richness-to-mass relation of CAMIRA galaxy clusters out to $z \approx 1.1$ in the Hyper Suprime-Cam survey”
MNRAS **498** (2020) 2030 [arXiv:2005.13564][ADS][INSPIRE] (2020/10)
- [48] M. Shiraishi*, **T. Okumura**, N. S. Sugiyama, K. Akitsu
 “Minimum variance estimation of galaxy power spectrum in redshift space”
MNRAS Letters **498** (2020) L77-L81 [arXiv:2005.03438][ADS][INSPIRE] (2020/07)
- [49] J. Matsumoto*, **T. Okumura**, M. Sasaki
 “New measures to test modified gravity cosmologies”
Journal of Cosmology and Astroparticle Physics **07** (2020) 059 [arXiv:2005.03438][ADS][INSPIRE] (2020/07)
- [50] **T. Okumura***, A. Taruya, T. Nishimichi
 “Testing tidal alignment models for anisotropic correlations of halo ellipticities with N-body simulations”
MNRAS **494** (2020) 694-702 [arXiv:2001.05302][ADS][INSPIRE] (2020/05)
- [51] A. Taruya*, **T. Okumura**
 “Improving Geometric and Dynamical Constraints on Cosmology with Intrinsic Alignments of Galaxies”
Astrophysical Journal Letters **891** (2020) L42 [arXiv:2001.05962][ADS][INSPIRE] (2020/03)
- [52] **T. Okumura***, A. Taruya
 “Anisotropies of intrinsic ellipticity correlations in real and redshift space: Angular dependence in linear tidal alignment model”
MNRAS Letters **493** (2020) L124-L128 [arXiv:1912.04118][ADS][INSPIRE] (2020/03)
- [53] **T. Okumura***, A. Taruya, T. Nishimichi
 “Intrinsic alignment statistics of density and velocity fields at large scales: Formulation, modeling and baryon acoustic oscillation features”
Physical Review D **100** (2019) 103507 [arXiv:1907.00750][ADS][INSPIRE] (2019/11)
- [54] A. Agrawal*, **T. Okumura**, T. Futamase
 “Constraining neutrino mass and dark energy with peculiar velocities and lensing dispersions of Type Ia supernovae”
Physical Review D **100** (2019) 063534 [arXiv:1907.02328][ADS][INSPIRE] (2019/09)
- [55] S. H. Suyu*, T.-C. Chang, F. Courbin, **T. Okumura**
 “Cosmological distance indicators”
Space Science Reviews **214** (2018) 91 [arXiv:1801.07262][ADS][INSPIRE] (2018/08)
- [56] **T. Okumura***, T. Nishimichi, K. Umetsu, K. Osato
 “Splashback radius of nonspherical dark matter halos from cosmic density and velocity fields”
Physical Review D **98** (2018) 023523 [arXiv:1807.02669][ADS][INSPIRE] (2018/07)
- [57] K. Umetsu*, M. Sereno, S.-I. Tam, I.-N. Chiu, Z. Fan, S. Ettori, D. Gruen, **T. Okumura**, E. Medezinski, M. Donahue, M. Meneghetti, B. Frye, A. Koekemoer, T. Broadhurst, A. Zitrin, I. Balestra, N. Benitez, Y. Higuchi, P. Melchior, A. Mercurio, J. Merten, A. Molino, M. Nonino, M. Postman, P. Rosati, J. Sayers, S. Seitz
 “The Projected Dark and Baryonic Ellipsoidal Structure of 20 CLASH Galaxy Clusters”
Astrophysical Journal **860** (2018) 104 [arXiv:1804.00664][ADS][INSPIRE] (2018/06)
- [58] M. TONEGAWA*, **T. Okumura**, T. Totani, G. Dalton, K. Yabe
 “The Subaru FMOS galaxy redshift survey (FastSound). V. Intrinsic alignments of emission line galaxies at $z \sim 1.4$ ”
Publication for Astronomical Society of Japan **70** (2018) 41 [arXiv:1708.02224][ADS][INSPIRE] (2018/06)

- [59] K. Osato*, T. Nishimichi, M. Oguri, M. Takada, **T. Okumura**
 “Strong orientation dependence of surface mass density profiles of dark haloes at large scales”
MNRAS **477** (2018) 2141-2153 [arXiv:1712.00094][ADS][INSPIRE] (2018/06)
- [60] F. Arroja*, **T. Okumura**, N. Bartolo, P. Karmakar, S. Matarrese
 “Large-scale structure in mimetic Horndeski gravity”
Journal of Cosmology and Astroparticle Physics **05** (2018) 050 [arXiv:1708.01850][ADS][INSPIRE] (2018/05)
- [61] N. S. Sugiyama*, **T. Okumura**, D. N. Spergel
 “A direct measure of free electron gas via the Kinematic Sunyaev-Zel’dovich effect in Fourier-space analysis”
MNRAS **475** (2018) 3764-3785 [arXiv:1705.07449][ADS][INSPIRE] (2018/04)
- [62] N. S. Sugiyama*, M. Shiraishi, **T. Okumura**
 “Limits on statistical anisotropy from BOSS DR12 galaxies using bipolar spherical harmonics”
MNRAS **473** (2018) 2737-2752 [arXiv:1704.02868][ADS][INSPIRE] (2018/01)
- [63] **T. Okumura***, M. Takada, S. More, S. Masaki
 “Reconstruction of halo power spectrum from redshift-space galaxy distribution: cylinder-grouping method and halo exclusion effect”
MNRAS **469** (2017) 459-475 [arXiv:1611.04165][ADS][INSPIRE] (2017/07)
- [64] M. Shiraishi*, N. S. Sugiyama, **T. Okumura**
 “Polypolar spherical harmonic decomposition of galaxy correlators in redshift space: Toward cosmic isotropy and homogeneity tests”
Physical Review D **95** (2017) 063508 [arXiv:1612.02645][ADS][INSPIRE] (2017/03)
- [65] N. S. Sugiyama*, **T. Okumura**, D. N. Spergel
 “Will kinematic Sunyaev-Zel’dovich measurements enhance the science return from galaxy redshift surveys?”
Journal of Cosmology and Astroparticle Physics **01** (2017) 057 [arXiv:1606.06367][ADS][INSPIRE] (2017/01)
- [66] N. S. Sugiyama*, **T. Okumura**, D. N. Spergel
 “Understanding redshift space distortions in density-weighted peculiar velocity”
Journal of Cosmology and Astroparticle Physics **07** (2016) 001 [arXiv:1509.08232][ADS][INSPIRE] (2016/07)
- [67] H. Okada*, T. Totani, M. Tonegawa, M. Akiyama, G. Dalton, K. Glazebrook, F. Iwamuro, K. Ohta, N. Takato, N. Tamura, K. Yabe, A. J. Bunker, T. Goto, C. Hikage, T. Ishikawa, **T. Okumura**, I. Shimizu
 “The Subaru FMOS Galaxy Redshift Survey (FastSound). II. The Emission Line Catalog and Properties of Emission Line Galaxies”
Publication for Astronomical Society of Japan **68** (2016) 47 [arXiv:1504.05592][ADS][INSPIRE] (2016/06)
- [68] **T. Okumura***, C. Hikage, T. Totani, M. Tonegawa, H. Okada, K. Glazebrook, C. Blake, P. G. Ferreira, S. More, A. Taruya, S. Tsujikawa, M. Akiyama, G. Dalton, T. Goto, T. Ishikawa, F. Iwamuro, T. Matsubara, T. Nishimichi, K. Ohta, I. Shimizu, R. Takahashi, N. Takato, N. Tamura, K. Yabe, N. Yoshida
 “The Subaru FMOS galaxy redshift survey (FastSound). IV. New constraint on gravity theory from redshift space distortions at $z \sim 1.4$ ”
Publication for Astronomical Society of Japan **68** (2016) 42 [arXiv:1511.08083][ADS][INSPIRE] (2016/06)
- [69] **T. Okumura***, N. Hand, U. Seljak, Z. Vlah, V. Desjacques
 “Galaxy power spectrum in redshift space: combining perturbation theory with the halo model”
Physical Review D **92** (2015) 103516 [arXiv:1506.05814][ADS][INSPIRE] (2015/11)
- [70] M. Tonegawa*, T. Totani, H. Okada, M. Akiyama, G. Dalton, K. Glazebrook, F. Iwamuro, T. Maihara, K. Ohta, I. Shimizu, N. Takato, N. Tamura, K. Yabe, A. J. Bunker, J. Coupon, P. G. Ferreira, C. S. Frenk, T.

- Goto, C. Hikage, T. Ishikawa, T. Matsubara, S. More, **T. Okumura**, W. J. Percival, L. R. Spitler, I. Szapudi
 “The Subaru FMOS Galaxy Redshift Survey (FastSound). I. Overview of the Survey Targeting on H α Emitters at $z \sim 1.4$ ”
Publication for Astronomical Society of Japan **67** (2015) 81 [arXiv:1502.07900][ADS][INSPIRE] (2015/10)
- [71] Y.-S. Song*, A. Taruya, E. Linder, K. Koyama, C. G. Sabiu, G.-B. Zhao, F. Bernardeau, T. Nishimichi, **T. Okumura**
 “Consistent Modified Gravity Analysis of Anisotropic Galaxy Clustering Using BOSS DR11”
Physical Review D **92** (2015) 043522 [arXiv:1507.01592][ADS][INSPIRE] (2015/08)
- [72] S. Saito*, T. Baldauf, Z. Vlah, U. Seljak, **T. Okumura**, P. McDonald
 “Understanding higher-order nonlocal halo bias at large scales by combining the power spectrum with the bispectrum”
Physical Review D **90** (2014) 123522 [arXiv:1405.1447][ADS][INSPIRE] (2014/12)
- [73] Y.-S. Song*, C. G. Sabiu, **T. Okumura**, M. Oh, E. V. Linder
 “Cosmological Tests using Redshift Space Clustering in BOSS DR11”
Journal of Cosmology and Astroparticle Physics **12** (2014) 005 [arXiv:1407.2257][ADS][INSPIRE] (2014/12)
- [74] Y.-S. Song*, **T. Okumura**, A. Taruya
 “Broadband Alcock-Paczynski test exploiting redshift distortions”
Physical Review D **89** (2014) 103541 [arXiv:1309.1162][ADS][INSPIRE] (2014/05)
- [75] **T. Okumura***, U. Seljak, Z. Vlah, V. Desjacques
 “Peculiar velocities in redshift space: formalism, N-body simulations and perturbation theory”
Journal of Cosmology and Astroparticle Physics **05** (2014) 003 [arXiv:1312.4214][ADS][INSPIRE] (2014/05)
- [76] J. Blazek*, U. Seljak, Z. Vlah, **T. Okumura**
 “Geometric and dynamic distortions in anisotropic galaxy clustering”
Journal of Cosmology and Astroparticle Physics **04** (2014) 001 [arXiv:1311.5563][ADS][INSPIRE] (2014/04)
- [77] E. V. Linder, M. Oh, **T. Okumura**, C. G. Sabiu, Y.-S. Song*
 “Cosmological Constraints from the Anisotropic Clustering Analysis using BOSS DR9”
Physical Review D **89** (2014) 063525 [arXiv:1311.5226][ADS][INSPIRE] (2014/03)
- [78] Z. Vlah*, U. Seljak, **T. Okumura**, V. Desjacques
 “Distribution function approach to redshift space distortions. Part V: perturbation theory applied to dark matter halos”
Journal of Cosmology and Astroparticle Physics **10** (2013) 053 [arXiv:1308.6294][ADS][INSPIRE] (2013/10)
- [79] **T. Okumura***, U. Seljak, V. Desjacques
 “Distribution function approach to redshift space distortions. Part III: halos and galaxies”
Journal of Cosmology and Astroparticle Physics **11** (2012) 014 [arXiv:1206.4070][ADS][INSPIRE] (2012/11)
- [80] Z. Vlah*, U. Seljak, P. McDonald, **T. Okumura**, T. Baldauf
 “Distribution function approach to redshift space distortions. Part IV: perturbation theory applied to dark matter”
Journal of Cosmology and Astroparticle Physics **11** (2012) 009 [arXiv:1207.0839][ADS][INSPIRE] (2012/11)
- [81] **T. Okumura***, U. Seljak, P. McDonald, V. Desjacques
 “Distribution function approach to redshift space distortions. Part II: N -body simulations”
Journal of Cosmology and Astroparticle Physics **02** (2012) 010 [arXiv:1109.1609][ADS][INSPIRE] (2012/02)

- [82] W. Wang*, Y. P. Jing, C. Li, **T. Okumura**, J. Han
 “Galaxy Clustering and Projected Density Profiles as Traced by Satellites in Photometric Surveys: Methodology and Luminosity Dependence”
Astrophysical Journal **734** (2011) 88 [arXiv:1011.2058][ADS][INSPIRE] (2011/06)
- [83] **T. Okumura***, Y. P. Jing
 “Systematic Effects on Determination of the Growth Factor from Redshift-space Distortions”
Astrophysical Journal **726** (2011) 5 [arXiv:1004.3548][ADS][INSPIRE] (2011/01)
- [84] **T. Okumura***, Y. P. Jing
 “The Gravitational Shear–Intrinsic Ellipticity Correlation Functions of Luminous Red Galaxies in Observation and in the Λ CDM Model”
Astrophysical Journal Letters **694** (2009) L83–L86 [arXiv:0812.2935][ADS][INSPIRE] (2009/03)
- [85] **T. Okumura***, Y. P. Jing, C. Li
 “Intrinsic Ellipticity Correlation of SDSS Luminous Red Galaxies and Misalignment with their Host Dark Matter Halos”
Astrophysical Journal **694** (2009) 214–221 [arXiv:0809.3790][ADS][INSPIRE] (2009/03)
- [86] **T. Okumura***, T. Matsubara, D. J. Eisenstein, I. Kayo, C. Hikage, A. S. Szalay, D. P. Schneider
 “Large-Scale Anisotropic Correlation Function of SDSS Luminous Red Galaxies”
Astrophysical Journal **676** (2008) 889–898 [arXiv:0711.3640][ADS][INSPIRE] (2008/04)

Scientific Articles / Book Chapters

- [87] S. H. Suyu, T.-C. Chang, F. Courbin, **T. Okumura**
 “Cosmological distance indicators”
 Astronomical Distance Determination in the Space Age. Series: Space Sciences Series of ISSI, ISBN: 978-94-024-1630-5. Springer Netherlands (Dordrecht), Edited by Richard de Grijs and Maurizio Falanga, vol. 66, pp. 353–386 (2019) [ADS]
- [88] **T. Okumura**, M. Tonegawa, T. Totani, C. Hikage
 “New test of Einstein’s general relativity by deepest galaxy survey with Subaru Telescope,”
The Astronomical Herald, The Astronomical Society of Japan, Vol. 110, No.2, p.131–141 (2017) [ADS]
- [89] **T. Okumura** (interviewed), Y. Arafune (writer)
 “General Relativity Stands True at Distant Universe,”
Graphic Science Magazine NEWTON, No.8, p.128–p.128 (2016) [Homepage (Japanese)]
- [90] **T. Okumura**,
 “An Analysis of SDSS Data Using the Galaxy Anisotropic Correlation Function,”
The Astronomical Herald, The Astronomical Society of Japan, Vol.101, No.10, p.589 – 597 (2008) [ADS]

Proceedings and unpublished papers

- [91] C.-C. Chen (TC), S.-Y. Pu, **T. Okumura**, Y.-J. Wang, Q.-N. Hsu, F. Arrigoni Battaia, I. Smail, L. Cowie
 “A forecast of a cosmological redshift survey for AtLAST”
 The Atacama Large Aperture Submillimeter Telescope (AtLAST) design study: results, science, and next steps, [ADS]
- [92] **T. Okumura***, T. Nishimichi, K. Umetsu, K. Osato
 “Intrinsic Alignments and Splashback Radius of Dark Matter Halos from Cosmic Density and Velocity Fields”
 arXiv preprint, [arXiv:1706.08860][ADS][INSPIRE]

- [93] M. Tonegawa, **T. Okumura**, T. Totani, G. Dalton, K. Yabe
“Intrinsic alignments of emission line galaxies at $z \sim 1.4$ from the FastSound redshift survey”
The Bulletin of The Korean Astronomical Society, vol. 42, no. 2, pp. 54.1-54.1. [ADS]
- [94] Y.-S. Song, C. G. Sabiu, **T. Okumura**, M. Oh, E. V. Linder
“Cosmological Tests using Redshift Space Clustering in BOSS DR11”
The Bulletin of The Korean Astronomical Society, vol. 40, no. 1, pp. 43.3-44. [ADS]
- [95] J. Kim, **T. Okumura**
“Heavy-Tail Distribution from Correlation of Discrete Stochastic Process”,
arXiv preprint [arXiv:1203.5581][ADS][INSPIRE]
- [96] Y. P. Jing, C. Y. Jiang, **T. Okumura**, A. Faltenbacher, C. Li, W. P. Lin
“Mergers of Galaxies and Orientation of Giant Elliptical Galaxies”,
ASP Conf. Ser. 408, The Starburst-AGN Connection, ed. W. Wang, Z. Yang, Z. Luo, and Z. Chen (San Francisco: Astronomical Society of the Pacific), 2009., p.328 [ADS]