

# CURRICULUM VITAE

*Tepei OKUMURA*

## PERSONAL DETAILS

Nationality: Japanese 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/tepei/>  
Present Address: Institute of Astronomy and Astrophysics, Academia Sinica (ASIAA)  
11F of AS/NTU Astronomy-Mathematics Building, No.1, Sec. 4, Roosevelt Rd, Taipei 10617, Taiwan

## ACADEMIC APPOINTMENTS

- 2021.7 - present
  - ASIAA, Research Fellow [equivalent to Full Professor]
  - 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, Associate Research Fellow [equivalent to Associate Professor]
- 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
- 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, TWD ( $\simeq$  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)

## STUDENTS SUPERVISED

Sy-Yun Pu	2022-2024	BS, NTHU	Project “High-redshift galaxy clustering”
Takuya Inoue	2020-	Ph.D., NTU	Project “Probing general relativistic effects” [paper]
Yao-Tsung Chuang	2020-2022 2022-2023 2023-	M.Sc., NTU Post-M.Sc. R.A., ASIAA Ph.D., NTU	Thesis “Intrinsic alignments of dark matter halos in $f(R)$ gravity simulations” [paper] Thesis “TBD”
Shing Lau	2022	M.Sc., NTU	
Ngoc Minh Le	2019 2020-2022	Intern, ASIAA M.Sc., NTHU	Project “Velocity power spectrum of dark matter halos”
Sheng-Chieh Lin	2019-2019	Post-M.Sc. R.A., ASIAA	
Shan-Chang Lin	2018-2018	Post-M.Sc. R.A., ASIAA	
Minji Oh	2011-2012	M.Sc., Ewha U.	Project “Redshift-space distortions”

## TEACHING EXPERIENCE

- 2023 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 15, 2023: “*Cosmology*”
- 2022 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 7, 2022: “*Cosmology*”
- 2022 Invited Lecturer for Student Seminar at ASIAA, Taiwan, March 15, 2022.  
Lecture title: “*Probing dark energy with large-scale structure of the universe*”
- 2021 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 8, 2021: “*Cosmology*”
- 2019 Supervising of intern student from Vietnam “Finite volume effect of the velocity power spectrum’ (3 months)
- 2019 Invited Lecturer for Student Seminar at ASIAA, Taiwan, November 25, 2019.  
Lecture title: “*Cosmology with large-scale structure of the Universe*”
- 2019 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 30, 2019: “*Cosmology*”
- 2018 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 26, 2018: “*Cosmology*”
- 2018 Invited Lecturer for undergraduate course of cosmology at NTHU, Taiwan (3 hours), May 8, 2018.  
Lecture title: “*Probing the accelerating expansion of the universe with large-scale structure*”
- 2017 Lecturer for ASIAA Summer Student Program at ASIAA, Taiwan, July 27, 2017: “*Cosmology*”
- 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

## RECOMMENDATION LETTERS FOR JOB APPLICATIONS (alphabetical)

- Faculty position: I-Non Chiu, Ken Osato, Naonori Sugiyama
- Postdoc position: Aniket Agrawal, Kazuyuki Akitsu, I-Non Chiu, Takuya Inoue, Minji Oh
- Graduate school: Yao-Tsung Chuang, Takuya Inoue, Ngoc Minh Le

## ACADEMIC SOCIETY AND CONTRIBUTIONS

- Membership
  - Astronomical Society of Japan
  - Rironkon (Theoretical Astronomy and Astrophysics community in Japan)
- Journal Referee
  - Nature Astronomy, UK
  - Physical Review D (PRD), USA
  - Journal of Cosmology and Astroparticle Physics (JCAP), Italy
  - The Astrophysical Journal (ApJ), USA
  - Monthly Notices of the Royal Astronomical Society (MNRAS), UK
  - Astronomy & Astrophysics (A&A), France
  - Progress of Theoretical Physics (PTP), Japan

- European Physical Journal C (EPJC), Europe
- Classical and Quantum Gravity (CQG), 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
  - 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)

## EVENT ORGANIZING AND MANAGEMENT ACTIVITIES

2024.8 – today	Chair	Research manpower (postdoc hiring) committee at ASIAA, Taiwan
2019.1 – 2020.3	Member	
2023.12	SOC chair	Large-scale Parity Violation Workshop at ASIAA, Taiwan
2023.10	SOC	The 2nd Shanghai Assembly on Cosmology and Structure Formation at TDLI, China
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 - <b>Supervising 7 computing staff members (2020.9-2021.10)</b>
2020.9 – 2022.8	Chair	
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
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
2013.12	Co-organizer	APCTP-IEU Focus program on Cosmology and Fundamental Physics IV at APCTP Postech, Korea
2004.4 – 2007.3	Organizer	weekly seminar in theoretical astrophysics group in Nagoya University
2005.8 – 2006.12	Deputy Head	Summer School in Astronomy & Astrophysics (over 400 participants)

## PRESENTATIONS

### Invited conference and workshop talks

- [1] “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)
- [2] “Tightening geometric and dynamical constraints on dark energy and gravity with galaxy intrinsic alignment”  
*IA Cosmology Workshop*, YITP, Kyoto University, Japan (November, 2021)
- [3] “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)

- [4] “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)
- [5] “Galaxy clustering analysis of the Subaru FastSound survey”  
*Cosmology workshop on galaxy redshift surveys*, NAOJ, Japan (August, 2019)
- [6] “Large-scale intrinsic alignments of halo orientations with velocity field”  
*PTchat@Kyoto*, YITP, Kyoto University, Japan (April , 2019)
- [7] “Cosmology with large-scale structure using Subaru: FMOS FastSound and PFS surveys”  
*EAO Subaru Science Workshop*, KASI, Korea (January, 2019)
- [8] “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)
- [9] “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)
- [10] “Recent progresses on studies of the splashback radius of dark matter halos” [**Review talk**]  
*Workshop on dark matter halos*, NAOJ, Japan (August, 2018)
- [11] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”  
*5th Korea-Japan workshop on Dark Energy*, KASI, Korea (August, 2018)
- [12] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”  
*The Nonlinear Universe 2018*, Smartno, Slovenia (July, 2018)
- [13] “Probing physical boundaries of dark matter halos from cosmic density and velocity fields”  
*Sesto 2018 workshop on gal axy clustering*, Sexten Center for Astrophysics, Italy (July 2018)
- [14] “Intrinsic Alignments and Splashback Radius of Dark Matter Halos from Cosmic Density and Velocity Fields”  
*The Nonlinear Universe*, Smartno, Slovenia (July, 2017)
- [15] “Reconstruction of halo power spectrum from redshift-space galaxy distribution”  
*2017 Rencontres du Vietnam on Cosmology conference*, Quy Nhon, Vietnam (July, 2017)
- [16] “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)
- [17] “New constraint on gravity theory at  $z$  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)
- [18] “Modeling nonlinear power spectrum of galaxies in redshift space”  
*Measuring and Modelling Redshift-Space Distortions in Galaxy Surveys*, Sexten Center for Astrophysics, Sesto, Italy (July, 2014)
- [19] “Galaxy Survey and Redshift-space distortions,” [**Review talk**]  
*2nd Observational Cosmology Workshop*, National Astronomical Observatory of Japan (December, 2013)
- [20] “Distribution function approach to redshift space distortions ”  
*The 5th KIAS Workshop on Cosmology and Structure Formation*, Korea Institute for Advanced Study, Korea (October, 2012)

- [21] “Distribution function approach to redshift space distortions: N-body simulations ”  
*Perturbative approaches to redshift space distortions*, University of Zurich, Switzerland (July, 2012)
- [22] “Distribution function approach to redshift space distortions: N-body simulations ”  
*WKYC 2012 Conference* , Daejeon, Korea (June, 2012)
- [23] “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)
- [24] “Dark Energy and Modified Gravity from Large-scale Structure”  
*QGC2010 NIMS-APCTP Joint International Workshop String Theory and Cosmology*, Daejeon, Korea (September, 2010)
- [25] “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)
- [26] “3D Galaxy Clustering (BAO)” [Review talk]  
*National Cosmology Workshop*, Institute for High Energy Physics and National Astronomical Observatory of China, Beijing, China (December, 2008)
- [27] “Large-Scale Anisotropic Correlation Function of the SDSS”  
*Conference for Hyper-Suprime Cam*, Mie, Japan (March, 2008)

#### Invited colloquium and seminar talks

- [1] “Probing the accelerating universe with galaxy redshift surveys”  
*NCHU Seminar*, National Chung Hsing University, Taiwan (December 2023)
- [2] “The First Constraints on Growth Rate from Intrinsic Alignment of Galaxy Orientation”  
*Invited online seminar*, “*We MUST Talk*”, Beijing, China (April 2023)
- [3] “Probing the accelerating universe with galaxy redshift surveys”  
*Colloquium at National Astronomical Research Institute of Thailand (NARIT)*, Chiang Mai, Thailand (August 2022)
- [4] “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)
- [5] “Intrinsic alignments of cosmic density and velocity fields as a cosmological probe”  
*NTHU IoA Colloquium*, National Tsing-Hua University, Taiwan (October 2019)
- [6] “Large-scale intrinsic alignments of dark matter halo orientations with velocity field”  
*Cosmology seminar at Stanford*, Stanford University, USA (April 2019)
- [7] “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)
- [8] “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)
- [9] “Reconstructing power spectrum of dark matter halos from galaxy distribution”  
*IANCU Colloquium*, National Central University, Taiwan (November, 2017)
- [10] “Precision cosmology with galaxy redshift surveys”  
*LeCosPA Cosmology and Particle Astrophysics Seminar*, National Taiwan University, Taiwan (May, 2017)

- [11] “Theoretical modeling of redshift space distortions for galaxies toward precision cosmology”  
*Cosmology seminar*, Yale University, USA (December, 2016)
- [12] “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)
- [13] “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)
- [14] “Probing dark energy and modified gravity from large-scale structure of the Universe”  
*Tsinghua Center for Astrophysics Colloquium*, Tsinghua University, Beijing, China (March, 2015)
- [15] “Modeling nonlinear power spectrum of dark matter halos and galaxies in redshift space”  
*Cosmology seminar*, YITP, Kyoto University, Japan (March 2015)
- [16] “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)
- [17] “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 projected tidal force tensor in three dimensions”  
*Cosmology in the Adriatic – From PT to AI*, Split Croatia (July 2024)
- [2] “Extracting gravitational waves from tidal tensor field: Application to galaxy intrinsic alignments”  
*Large-scale parity violation workshop*, ASIAA, Taiwan (December 2023)
- [3] “Constraints on growth rate with intrinsic ellipticity correlations of SDSS BOSS galaxies”  
*IA cosmology workshop*, YITP, Kyoto University, Japan (Dec 2022)
- [4] “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)
- [5] “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)
- [6] “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)
- [7] “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)
- [8] “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)
- [9] “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)
- [10] “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)

- [11] “Nonlinear velocity statistics and redshift-space distortions in peculiar velocity surveys”  
*CosKASI Conference 2014*, Korea Astronomy and Space Science Institute, Korea (April, 2014)
- [12] “Formulation of velocity statistics in redshift space”  
*Annual Conference in Astronomical Society of Japan*, International Christian Univ., Japan (March, 2014)
- [13] “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)
- [14] “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)
- [15] “Modeling redshift-space power spectrum using phase space distribution function approach”  
*Annual Conference in Astronomical Society of Japan*, Kagoshima University, Japan (September, 2011)
- [16] “Intrinsic ellipticity correlation of luminous red galaxies”  
*Annual Conference in Astronomical Society of Japan*, Osaka Prefecture University, Japan (March, 2009)
- [17] “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)
- [18] “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)
- [19] “Large-Scale Anisotropic Correlation Function of SDSS Luminous Red Galaxies”  
*1st Korea-Japan Workshop on Galaxy Evolution*, Yonsei University, South Korea (February, 2008)
- [20] “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)
- [21] “Anisotropic Correlation Function in the LRG”  
*SDSS-II Collaboration Meeting*, Seoul National University, Korea (September, 2006)
- [22] “Cosmological Parameters from Anisotropy of SDSS LRG Correlation Function”  
*SDSS-II Collaboration Meeting*, Santa Fe, USA (March, 2006)
- [23] “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)
- [24] “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 : Kavli IPMU, The University of Tokyo, together with

- Astronomy department, The University of Tokyo;
- Physics department, Kyoto University;
- National Astronomical Observatory of Japan;
- 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: **70** [2496 citations] (citations taken from Google Scholar).
  - Number of first and second authored publications: **43**.
  - 1<sup>st</sup> author paper statistics: **2** papers with > 220 citations, **4** with > 100 citations and **9** with > 50 citations
- [1] S.-Y. Pu, **T. Okumura**, Chian-Chou Chen, Takahiro Nishimichi, Kazuyuki Akitsu  
“Cosmological constraints from N-body simulations for future spectroscopic galaxy surveys at  $2 \leq z \leq 3$ ”  
Submitted to *Phys. Rev. D Lett.* (2024) [arXiv:2410.02524][ADS]
  - [2] S. Masaki, M. Shiraishi, T. Nishimichi, **T. Okumura**, Shuichiro Yokoyama  
“First confirmation of anisotropic bias from statistically anisotropic matter distributions”  
Submitted to *Phys. Rev. Lett.* (2024) [arXiv:2409.12004][ADS]
  - [3] A. Taruya, T. Kurita, **T. Okumura**  
“Improving redshift-space power spectra of halo intrinsic alignments from perturbation theory”  
Submitted to *Phys. Rev. D* (2024) [arXiv:2409.06616][ADS]
  - [4] 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”  
Submitted to *Publication for Astronomical Society of Japan* (2024) [arXiv:2408.11462][ADS]
  - [5] 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”  
Submitted to *Phys. Rev. D* (2024) [arXiv:2406.19669][ADS]
  - [6] J. Shim, U.-L. Pen, H.-R. Yu, **T. Okumura**  
“Probing vector chirality in the early Universe”  
Submitted to *Phys. Rev. Lett.* (2024) [arXiv:2406.06080][ADS]
  - [7] 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”  
*ApJ Letters* **976** (2024) L11[arXiv:2409.13022][ADS]
  - [8] 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. Cicone, 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]
  - [9] **T. Okumura**, M. Sasaki  
“Extracting parity-violating gravitational waves from projected tidal force tensor in three dimensions”  
*JCAP* **10** (2024) 060 [arXiv:2405.04210][ADS]
  - [10] **T. Okumura**, A. Taruya, T. Kurita, T. Nishimichi  
“Nonlinear redshift space distortion in halo ellipticity correlations: Analytical model and N-body simulations”  
*Phys. Rev. D* **109** (2024) 103501 [arXiv:2310.07384][ADS]

- [11] 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]
- [12] S. Saga, M. Shiraishi, K. Akitsu, **T. Okumura**  
“Imprints of primordial magnetic fields on intrinsic alignments of galaxies”  
*Phys. Rev. D* **109** (2024) 043520 [arXiv:2312.16316][ADS]
- [13] 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]
- [14] K. Akitsu, Y. Li, **T. Okumura**  
“Quadratic shape biases in three-dimensional halo intrinsic alignments”  
*JCAP* **08** (2023) 068 [arXiv:2306.00969][ADS]
- [15] M. Shiraishi, **T. Okumura**, K. Akitsu  
“Statistical anisotropy in galaxy ellipticity correlations”  
*JCAP* **08** (2023) 013 [arXiv:2303.10890][ADS]
- [16] 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”  
*PTEP* **2023** (2023) 072E01 [arXiv:2212.09094][ADS]
- [17] K. Akitsu, Y. Li, **T. Okumura**  
“Gravitational wave fossils in nonlinear regime: halo tidal bias and intrinsic alignments from gravitational wave separate universe simulations”  
*Phys. Rev. D* **107** (2023) 063531 [arXiv:2209.06226][ADS]
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