

# PUBLICATIONS

November 9, 2018

Atsuhisa Ota (a3hios2t2u@icloud.com)

*Department of Applied Mathematics and Theoretical Physics, University of Cambridge*

**Note:** In my field (High energy physics and Cosmology), relevant achievements are papers published in journals. Impact factors are similar for typical journals such as Physical Review D (PRD), Physics Letters B (PLB), Journal of Cosmology and Astroparticle Physics (JCAP) and Journal of High Energy Physics (JHEP), except for Physical Review Letter (PRL). I have contributed actively to all of the publications below. The order of authors is strictly alphabetical **except for A. Ota and N. Bartolo (2018)**. I am familiar with all the results presented there, and I know how to reproduce them. A paper posted on the arXiv is commonly considered published, so I add my latest works (arXiv:1810.03928, arXiv:1808.10517 and arXiv:1805.06240), although they are still under peer review by PLB, PRL and JHEP.

## PAPERS IN PUBLICATION

---

- [10] **A. Ota**, “Statistical anisotropy in CMB spectral distortions,” arXiv:1810.03928 [astro-ph.CO], **submitted to PLB**.
- [9] **A. Ota** and N. Bartolo, “CMB spectroscopy at third-order in cosmological perturbations,” arXiv:1808.10517 [astro-ph.CO], **submitted to PRL**.
- [8] M. Hongo, S. Kim, T. Noumi and **A. Ota**, “Effective field theory of time-translational symmetry breaking in nonequilibrium open system,” arXiv:1805.06240 [hep-th], **submitted to JHEP**.
- [7] T. Haga, K. Inomata, **A. Ota** and A. Ravenni, “Exploring compensated isocurvature perturbations with CMB spectral distortion anisotropies,” JCAP **1808**, no. 08, 036 (2018) doi:10.1088/1475-7516/2018/08/036 [arXiv:1805.08773 [astro-ph.CO]]. 2 citations counted in INSPIRE as of 28 Aug 2018
- [6] **A. Ota** and M. Yamaguchi, “Secondary isocurvature perturbations from acoustic reheating,” JCAP **1806**, no. 06, 022 (2018) doi:10.1088/1475-7516/2018/06/022 [arXiv:1705.05196 [astro-ph.CO]].
- [5] **A. Ota**, “CMB spectral distortions as solutions to the Boltzmann equations,” JCAP **1701**, no. 01, 037 (2017) doi:10.1088/1475-7516/2017/01/037 [arXiv:1611.08058 [astro-ph.CO]]. 3 citations counted in INSPIRE as of 19 Aug 2018
- [4] **A. Ota**, “Cosmological constraints from  $\mu E$  cross-correlations,” Phys. Rev. D **94**, no. 10, 103520 (2016) doi:10.1103/PhysRevD.94.103520 [arXiv:1607.00212 [astro-ph.CO]]. 7 citations counted in INSPIRE as of 19 Aug 2018
- [3] A. Naruko, **A. Ota** and M. Yamaguchi, “Probing small-scale non-Gaussianity from anisotropies in acoustic reheating,” JCAP **1505**, no. 05, 049 (2015) doi:10.1088/1475-7516/2015/05/049 [arXiv:1503.03722 [astro-ph.CO]]. 6 citations counted in INSPIRE as of 19 Aug 2018
- [2] **A. Ota**, T. Sekiguchi, Y. Tada and S. Yokoyama, “Anisotropic CMB distortions from non-Gaussian isocurvature perturbations,” JCAP **1503**, no. 03, 013 (2015) doi:10.1088/1475-7516/2015/03/013 [arXiv:1412.4517 [astro-ph.CO]]. 9 citations counted in INSPIRE as of 19 Aug 2018
- [1] **A. Ota**, T. Takahashi, H. Tashiro and M. Yamaguchi, “CMB  $\mu$  distortion from primordial gravitational waves,” JCAP **1410**, no. 10, 029 (2014) doi:10.1088/1475-7516/2014/10/029 [arXiv:1406.0451 [astro-ph.CO]]. 14 citations counted in INSPIRE as of 19 Aug 2018

## PRESENTATIONS

---

### *Invited talks*

- [2] “CMB spectroscopy for primordial non-Gaussianity”, Probing fundamental physics with CMB spectral distortions, CERN, Switzerland, 03/2018
- [1] “CMB  $\mu$  distortion from primordial gravitational waves”, Mini-Workshop on Cosmology, Asia Pacific Center of Theoretical Physics, Korea, 12/2014

### *Conference talks (International)*

- [7] “Effective field theory of time-translational symmetry breaking in open systems”, Infrared physics of gauge theories and quantum dynamics of inflation, Shiga, Japan, 01/2018
- [6] “Spontaneous symmetry breaking in open systems: Toward application to EFT of inflation”, The 27th Workshop on General Relativity and Gravitation, Hiroshima, Japan 11/2017
- [5] “Cosmological constraints from  $\mu$ E cross-correlations”, The 26th Workshop on General Relativity and Gravitation, Osaka City University, Japan, 10/2016
- [4] “Cosmological constraints from  $\mu$ E cross-correlations”, Summer School on Symmetries, Fundamental Interactions and Cosmology 2016, Germany, 09/2016
- [3] “Cosmological constraints from  $\mu$ E cross-correlations”, RESCUE Summer school, Nagano, Japan, 08/2016
- [2] “CMB  $\mu$  distortion from primordial gravitational waves” The 24th Workshop on General Relativity and Gravitation, Kavli Institute for Physics and Mathematics of the Universe, Tokyo, Japan 11/2014
- [1] “CMB  $\mu$  distortion from primordial gravitational waves” Research Center of the Early Universe Summer school, Nagano Japan, 08/2014

### *Conference talks (in Japanese)*

- [3] “Secondary isocurvature perturbations from acoustic reheating”, JPS conference, 09/2017
- [2] “CMB spectral distortions as solutions of the Boltzmann equation”, JPS conference, 03/2017
- [1] Other three JPS presentations, but titles are in Japanese.

### *Seminar talks*

- [16] “Statistical anisotropy in spectral distortions”, ICG Portsmouth, 10/2018
- [15] “EFT of dissipative fluid: an application to cosmology”, The Institut d’Astrophysique de Paris (IAP), 10/2018
- [14] “EFT of dissipative fluid: an application to cosmology”, Marseille University, 10/2018
- [13] “Late time evolution of isocurvature perturbations at second order”, Padova University, 05/2018
- [12] “Late time evolution of isocurvature perturbations at second order”, Groningen University, 05/2018
- [11] “Open system effective field theory for time-translational symmetry breaking: towards application to EFT of inflation”, Utrecht University, 04/2018
- [10] “A new method for higher order CMB anisotropy”, Rikkyo University, 05/2017
- [9] “A new method for higher order CMB anisotropy”, Kobe University, 03/2017
- [8] “CMB spectral distortions as solutions to the Boltzmann equations”, KEK, 03/2017
- [7] “Higher order anisotropies in the cosmic microwave background”, Max Planck Institute of Astrophysics (Job Talk), 01/2017
- [6] “Cosmological Constraints from  $\mu$ E cross-correlations” Syracuse University, 10/2016

- [5] “Cosmological Constraints from  $\mu$ E cross-correlations” Manchester University, 10/2016
- [4] “Cosmological Constraints from  $\mu$ E cross-correlations” Utrecht University, 09/2016
- [3] “Cosmological Constraints from  $\mu$ E cross-correlations” Max Planck Institute of Astrophysics, 09/2016
- [2] “The cosmic microwave background  $\mu$ -distortions and primordial gravitational waves”, University of Nagoya, 09/2014
- [1] “CMB  $\mu$  distortion and primordial gravitational waves” Joint Seminar, Tokyo Institute of Technology, 05/2014

## **PRIZE AND AWARDS**

---

- [4] Overseas Research Fellow of the Japan Society for the Promotion of Science, 01/04/2018 - 31/03/2020
- [3] Research Fellow of the Japan Society for the Promotion of Science (PD), 01/04/2017 - 31/03/2018
- [2] Research Fellow of the Japan Society for the Promotion of Science (DC2), 01/04/2016 - 31/03/2017
- [1] Vice valedictorian, Department of Physics, Tokyo Institute of Technology, 03/2012

## **FUNDINGS**

---

- [1] Grant-in-Aid for JSPS Fellows, Project/Area Number: 16J03220, Project Period (FY) 22/04/2016 - 31/02/2018, Fiscal Year 2017 : 1,430,000JPY (Direct Cost : 1,100,000JPY, Indirect Cost : 330,000JPY) Fiscal Year 2016 : 1,200,000JPY (Direct Cost : 1,200,000JPY)

## **SUPERVISING AND MENTORING ACTIVITIES**

---

- [2] (Unofficial) supervision of a Master student, Tokyo Institute of Technology, 2017 - 2018
- [1] Teaching assistant, Tokyo Institute of Technology, Mechanics, Electromagnetism, Analytical Mechanics, 10/2011 - 03/2017