Jason Kristiano

Ph.D. Student in Theoretical Physics.

Research Center for the Early Universe (RESCEU),
Graduate School of Science, The University of Tokyo,
Hongo 7-3-1, Bunkyo-ku, Tokyo 113-0013, Japan.

Research Interest

Quantum field theory of fluctuations generated during cosmic inflation.

Keywords: Cosmic Inflation, Cosmological Perturbations, Quantum Field Theory in Curved Spacetime, Cosmological Bootstrap, and Primordial Black Holes.

Personal

- Year of Birth: 1997.
- Place of Birth: Jakarta, Indonesia.
- Nationality: Indonesia.
- Language Proficiency: Indonesian (Native), English (CEFR C1), and Japanese (Passed N3).
- Email: jkristiano@resceu.s.u-tokyo.ac.jp

Education

The University of Tokyo **2021/10–**

- Doctor of Philosophy (Ph.D.) Program in Physics.
- Advisor: Prof. Jun'ichi Yokoyama.
- Support: JSPS DC1 Fellowship and GSGC Scholarship (Partial).

The University of Tokyo **2019/09–2021/09**

- Master of Science (M.Sc.) in Physics.
- Advisor: Prof. Jun'ichi Yokoyama.
- Thesis: Theoretical bound on primordial non-Gaussianity in single-field inflation.
- Support: MEXT Scholarship and GSGC Scholarship (Inactive).

Universitas Indonesia **2015/08–2018/08**

- Bachelor of Science (S.Si.) in Physics.
- Advisor: Prof. Terry Mart.
- Thesis: Pure spin-3/2 representation for use in particle and nuclear physics.
- Support: Indonesia International Science Olympiad Scholarship.

Career

Research Fellow **2022/04–**

- JSPS DC1 Fellowship, The University of Tokyo, Japan.
- Supervisor: Prof. Jun'ichi Yokoyama.

- Grant: JPY 2,500,000 for 3 years.
- Project: Cosmological correlators as a probe of fundamental physics.

Research Assistant (Internship) 2019/04–2019/06

- IBM T. J. Watson Research Center, New York, United States.
- Supervisor: Dr. Oki Gunawan.
- Project: Theoretical aspect of magnetic trap system.

Publication and Preprint

6. J. Kristiano and J. Yokoyama, *Perturbative region on non-Gaussian parameter space in single-field inflation*, Journal of Cosmology and Astroparticle Physics **07** (2022) 007 [arXiv:2204.05202].

5. J. Kristiano and J. Yokoyama, *Why Must Primordial Non-Gaussianity Be Very Small?*, Physical Review Letters **128**, 061301 (2022) [arXiv:2104.01953].

4. O. Gunawan, J. Kristiano, and H. Kwee, *Magnetic-tip trap system*, Physical Review Research **2**, 013359 (2020) [arXiv:1906.05680].

3. J. Kristiano, R.D. Lambaga, and H.S. Ramadhan, *Coleman-de Luccia tunneling wave function*, Physics Letters B **796**, 225-229 (2019) [arXiv:1808.10110].

2. T. Mart, J. Kristiano, and S. Clymton, *Pure spin-3/2 representation with consistent interactions*, Physical Review C **100**, 035207 (2019) [arXiv:1909.04282].

1. J. Kristiano, S. Clymton, and T. Mart., *Pure spin-3/2 propagator for use in particle and nuclear physics*, Physical Review C (Rapid Communication) **96**, 052201 (2017) [arXiv:1710.07930].

Conference

Oral Talk

11. *One-loop perturbativity bound in single-field inflation*, The 31th Workshop on General Relativity and Gravitation in Japan (JGRG), The University of Tokyo, Japan, October 2022.

10. *One-loop perturbativity bound in single-field inflation*, The 26th International Summer Institute on Phenomenology of Elementary Particle Physics and Cosmology, Fuji-Yoshida, Japan, September 2022.

9. *Perturbative region on non-Gaussian parameter space in single-field inflation*, The 78th Physical Society of Japan (JPS) Meeting, Okayama University of Science, Japan, September 2022.

8. *Perturbative region on non-Gaussian parameter space in single-field inflation*, The 15th Asia-Pacific Physics Conference (APPC), South Korea, August 2022 (Online).

7. *Theoretical bound on primordial non-Gaussianity in single-field inflation*, The 77th Physical Society of Japan (JPS) Meeting, Japan, March 2022 (Online).

6. *Theoretical bound on primordial non-Gaussianity in single-field inflation*, The 30th Workshop on General Relativity and Gravitation in Japan (JGRG), Waseda University, Japan, December 2021 (Online).

5. *Theoretical bound on primordial non-Gaussianity in single-field inflation*, Recent Progress of Quantum Cosmology (YITP Workshop), Kyoto University, Japan, November 2021 (Online).

4. *Coleman-de Luccia tunneling wave function*, The 14th Asia-Pacific Physics Conference (APPC), Kuching, Malaysia, November 2019.

3. *Coleman-de Luccia tunneling wave function*, Conference on Theoretical Physics and Nonlinear Phenomena (CTPNP), Makasar, Indonesia, July 2018.

2. *Path integral quantization of an interacting pure spin-3/2 field*, The 4th International Symposium on Current Progress in Mathematics and Sciences (ISCPMS), Depok, Indonesia, July 2018.

1. *Massive particle spin-3/2 propagator*, The 3rd International Symposium on Current Progress in Mathematics and Sciences (ISCPMS), Bali, Indonesia, July 2017.

Poster Presentation

2. *Theoretical bound on primordial non-Gaussianity in single-field inflation*, The 8th International Conference on Quark and Nuclear Physics (QNP), Tsukuba, Japan, November 2018.

1. *Pure spin-3/2 propagator for use in particle and nuclear physics*, The 8th International Conference on Quark and Nuclear Physics (QNP), Tsukuba, Japan, November 2018.

Teaching Experience

Universitas Indonesia

- Lab Assistant, Advanced Physics Experiment (Second Half of 2017, First Half of 2018, and Second Half of 2018).
- Teaching Assistant, Mathematical Physics 1 (First Half of 2017).

Award

- Graduated *cum laude* (GPA: 3.96/4, the highest over all bachelor graduates) from Universitas Indonesia.
- Bronze Medal, International Physics Olympiad (IPhO) 2015 in Mumbai, India.
- Honorable Mention, Asian Physics Olympiad (APhO) 2015 in Hangzhou, China.