

Jungjoon Leo Kim

PhD Candidate in Physics at Queen's University

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Education

- 2021–Present **PhD, Physics**, *Queen's University*, Kingston, ON, Canada.
2019–2021 **MMath, Applied Mathematics**, *University of Waterloo*, Waterloo, ON, Canada.
2014–2019 **BMath, Mathematical Physics**, *University of Waterloo*, Waterloo, ON, Canada.

Research Experience

- 2021–Present **Graduate Research Assistant**, *Queen's University*, Kingston, ON, Canada.
Advisor: Joseph Bramante
Thesis: TBD
- 2019–2021 **Graduate Research Assistant**, *University of Waterloo*, Waterloo, ON, Canada.
Advisor: Ghazal Geshnizjani
Thesis: Spectrum of Cuscuton Bounce and Cosmological Parameter Inference Using Dark Sirens
- 2019 **Undergraduate Research Assistant**, *McGill University*, Montréal, QC, Canada.
Advisor: Gantumur Tsogtgerel
Project: Quadrilateral Regge Elements
- 2018 **Undergraduate Research Assistant**, *University of Waterloo*, Waterloo, ON, Canada.
Advisor: Ghazal Geshnizjani
Project: Power Spectrum for Cuscuton Bounce
- 2016 **Undergraduate Researcher**, *Institute for Quantum Computing*, Waterloo, ON, Canada.
Advisor: Kyung Soo Choi
Project: PID Controllers for ECDL Frequency Stabilization

Honours & Awards

2022–2025	NSERC Canada Graduate Scholarship – Doctoral (CGS D)	\$105,000
2021	University of Waterloo Applied Math Outstanding Teaching Assistant Award	\$500
2018	NSERC Undergraduate Student Research Award	\$4,500
2016	NSERC Undergraduate Student Research Award [Declined]	\$4,500
2014	Adel S. Sedra Entrance Scholarship	\$3,000

Publications and Preprints

Published

1. **J. L. Kim** and G. Geshnizjani, *Spectrum of Cuscuton Bounce*, *JCAP* **03** (2021) 104 [[2010.06645](#)].

Talks & Seminars

- 2023 More Ways to (Be) Cool: Compact Objects from Inelastic Dark Matter
2023 Phenomenology Symposium – *University of Pittsburgh*
- 2022 A Poisson Log-Normal Framework for Cosmological Parameter Inference Using Dark Sirens
TeVPA 2022 – *Queen's University*

- 2020 Power spectrum for scalar and tensor perturbations in Cuscuton bounce ([poster](#) and talk)
The 9th KIAS Workshop on Cosmology and Structure Formation (virtual) – *Korea Institute for Advanced Study*
- 2020 Towards scale invariance in Cuscuton bounce
Applied Mathematics Graduate Seminar (virtual) – *University of Waterloo*
- 2020 Towards scale invariance in Cuscuton bounce
Cosmology group meeting (virtual) – *Perimeter Institute for Theoretical Physics*
- 2019 Quadrilateral Regge elements
Mathematics and Statistics Undergraduate Research Conference – *McGill University*
- 2018 Power spectrum for Cuscuton bounce (Awarded best presentation)
Applied Mathematics Undergraduate Research Mini-Conference – *University of Waterloo*

Conference & Workshop Participation

- 2023 TRISEP 2023 – *Perimeter Institute for Theoretical Physics* (Upcoming)
- 2023 PHENO 2023 – *University of Pittsburgh* (Upcoming)
- 2022 TeVPA 2022 – *Queen's University*
- 2022 New Horizons in Astro and Particle Theory Workshop – *Queen's University*
- 2022 Gravitational Waves Beyond the Boxes II – *Perimeter Institute for Theoretical Physics*
- 2021 IV Joint ICTP-Trieste/ICTP-SAIIR School on Cosmology (virtual) – *ICTP-SAIIR*
- 2021 Astrostatistics Summer School XVI (virtual) – *Penn State University*
- 2020 The 9th KIAS Workshop on Cosmology and Structure Formation (virtual) – *KIAS*
- 2020 Cosmology from Home 2020 (virtual) – *Cosmology from Home*
- 2020 Michigan Cosmology Summer School (virtual) – *University of Michigan*
- 2019 Mathematics and Statistics Undergraduate Research Conference – *McGill University*
- 2018 Applied Mathematics Undergraduate Research Mini-Conference – *University of Waterloo*

Mentoring & Teaching

Mentoring

- 2020 **Summer Undergraduate Research Project**, *University of Waterloo and Perimeter Institute for Theoretical Physics*, Waterloo, ON, Canada.
Project: Cross-correlation of the Astrophysical Gravitational Wave Background with Galaxy Surveys
Mentees: Kieana Fana (Waterloo), Jordan Krywonos (Perimeter), Madison Tindall (Perimeter)

Teaching

- 2021-Present **Graduate Teaching Assistant**, *Queen's University*, Kingston, ON, Canada.
 - APSC 112: Physics II (Winter 2023)
 - PHYS 345: Quantum Physics of Atoms, Nuclei and Particles (Winter 2022, Winter 2023)
 - PHYS 316: Methods in Mathematical Physics I (Fall 2021, Fall 2022)
 - PHYS 344: Introduction to Quantum Mechanics (Fall 2021)
- 2019–2021 **Graduate Teaching Assistant**, *University of Waterloo*, Waterloo, ON, Canada.
 - MATH 674: Special Relativity for Teachers (Spring 2021)
 - AMATH 373: Quantum Theory 1 (Winter 2021)
 - MATH 228: Differential Equations for Physics and Chemistry (Winter 2021)
 - AMATH 456: Calculus of Variations (Fall 2020)
 - MATH 636: Linear Algebra for Teachers (Spring 2020)
 - AMATH 353: Partial Differential Equations 1 (Winter 2020)
 - MATH 217: Calculus 3 for Chemical Engineering (Winter 2020)
 - MATH 115: Linear Algebra for Engineering (Fall 2019)

2016–2020 **Private Tutor, Self-employed**, Waterloo, ON, Canada.

- MTE 203: Advanced Calculus (Mechatronics)
- MATH 124: Calculus for Kinesiology
- MATH 127: Calculus for Honours Science
- PHYS 112: Physics 2
- PHYS 115: Mechanics for Engineering
- PHYS 121: Mechanics for Honours Physics
- MCAT Physics

2016–2019 **Undergraduate Teaching Assistant**, *University of Waterloo*, Waterloo, ON, Canada.

- MATH 137: Calculus 1 for Honours Mathematics (Fall 2016, Fall 2018)
- MATH 138: Calculus 2 for Honours Mathematics (Winter 2017, Winter 2019)
- ECE 206: Advanced Calculus 2 for Electrical Engineers (Fall 2017)

Institutional Service

2022–Present **Public Education Specialist**, *Arthur B. McDonald Canadian Astroparticle Physics Research Institute*, *Queen's University*, Kingston, ON, Canada.

2022–Present **Colloquium Committee Graduate Representative**, *Graduate Physics Society*, *Queen's University*, Kingston, ON, Canada.

2022 **Volunteer**, *TeVPA 2022*, *Queen's University*, Kingston, ON, Canada.