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acroscopic
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Damien M. E. Koon

Research Interests: Theoretical physics; quantum gravity; holography (AdS/CFT); conformal field theory; quantum information in QFT

Education

May 2027 **B.S. in Physics**, *Florida Institute of Technology*, Melbourne, FL, **GPA: 4.00/4.00**

May 2024 **A.S. in Physics**, *Mississippi Gulf Coast Community College*, Gulfport, MS

May 2022 **A.A.S. in Cyber Security**, *Mississippi Gulf Coast Community College*, Gulfport, MS

May 2020 **High School Diploma**, *Long Beach Senior High School*, Long Beach, MS

Work Experience

Sep 2024–Present **Ortega Observatory Assistant**, *Florida Institute of Technology*, Melbourne, FL

- Designed, proposed, and led observational astronomy activities for students and community groups across campus and external venues including Kennedy Space Center Visitor Complex.
- Set up, maintained, and instructed use of a wide range of telescopes including manual and motorized telescopes of different types and sizes; executed polar and multi-star alignment.
- Communicated complex astronomical concepts clearly to large public audiences (up to 1,000 participants).
- Project manager of the Observatory's History of Astrophotography collection and led the Art Conservation and 3D printing accessibility programs.
- Key events: Florida Tech STEM Power Day and Discovery Day, NASA Under the Stars (Kennedy Space Center), West Melbourne School of Science events.

May–Aug 2025 **Research Assistant (GRB Afterglows Group)**, *Florida Institute of Technology*, Melbourne, FL

- Improved computational infrastructure: created and modernized Github documentation, standardized Git usage, and enhanced HPC workflows.
- Converted high-data HPC simulation outputs into HDF5, reducing storage by ∼85% speeding up I/O accessibility.
- Developed Python tools for performance diagnostics, error detection, and parameter-space exploration.
- Presented project goals, methodology, and results to international audiences at ASROC 2025 conference in Taiwan

Dec 2022–May 2024 **Museum Host**, *INFINITY Science Center*, Pearlington, MS

- Curated and presented STEM exhibits and demonstrations to diverse audiences.
- Operated scientific equipment (3D printers, Van de Graaff, Tesla coil).
- Founded and maintained the museum library; coordinated educational tours for groups between 2 and 50 people.
- Collaborated with Apollo 13 astronaut Fred Haise on public engagements and archival projects.
- Organized donor engagement for archival and autograph correspondence.

Sep 2021–May 2024 **Federal Work Study — Student Worker**, *MGCCC*, Gulfport, MS

- Managed CCNA networking lab; reset hardware, maintained servers, assisted students and faculty.
- Set up science labs and supported events; maintained lab safety and organization.

Undergraduate Research

Sep 2024–Present **Gamma-Ray Burst Afterglows**, *Florida Institute of Technology*, Melbourne, FL, Supervisor: Dr. Donald Warren

- Reviewed scientific literature; translated theoretical models into numerical simulations.
- Generated training data for neural networks across high-dimensional parameter spaces.
- Automated data cleaning and error analysis for robust model preparation and manuscript drafting.

Jan 2025–Present **Quantum Computing — CHSH Experiment Honors Project**, *Florida Institute of Technology*, Melbourne, FL, Supervisor: Dr. Souvik Das

- Independently studied foundational quantum information theory.
- Implemented three CHSH inequality violation methods: two simulators and one on IBM Quantum hardware.
- Built teaching demos for qubits (Hadamard-gate axis and spinor models).
- Drafted a formal research paper and delivered multiple lectures on quantum information fundamentals.
- Delivered internal talks; write-up and code: https://github.com/acroscopic/CHSH.

Presentations and Teaching

May 2025 **"Neural Networks for Parameter Estimation of Orphan Afterglows,"** ASROC Annual Meeting, National Formosa University, Taiwan. Slides.

Apr 2025 **CHSH Inequality Lecture Series (3 lectures)**, Florida Institute of Technology; Poster at SPSCon 2025. Abstract Book.

Extracurriculars & Leadership

Aug 2024–August 2025 **Society of Physics Students**, *President/Treasurer*, Florida Institute of Technology
- Organized ∼$10k funding for conference travel
- Organized Sigma Pi Sigma Induction ceremony
- Ran an introductory LaTeX workshop

2023–2024 **Phi Theta Kappa**, *Vice President of Scholarship*, Mississippi Gulf Coast Community College
- Honors in Action Project Head; Led research on the Mississippi Gulf Coast seawall.
- Synthesized research and authored a children's book; distributed to county libraries and elementary schools.

2020–2024 **Mississippi Gulf Coast Community College** STEAM Club President, American Sign Language Organization President

2016–2020 **Long Beach High School** Chess Club President; Coffee Shop Manager; STEM Club; Choral Ensemble

Relevant Coursework

Physics: General Relativity, Subatomic Physics, Classical Mechanics; Electricity & Magnetism; Quantum Mechanics; Statistical Mechanics; Quantum Computing.

Mathematics: Manifolds, Real Analysis, Complex Analysis, Point-set Topology, Abstract Algebra; ODE/PDE; Linear Algebra.

Skills

Python, Bash, Git; HPC (Slurm, Linux); HDF5; NumPy/SciPy/Pandas/Matplotlib; Qiskit/IBM Quantum; LaTeX; Web (HTML/CSS); Technical communication; Public speaking; Project coordination.

Awards & Honors

2025 Outstanding Student of the Year; Florida Tech Honors College

2024 MGCCC Citizenship Award; Phi Theta Kappa Alumni & Excellence in Leadership Award

2024 MGCCC Honor College, Student Hall of Fame

Memberships

Sigma Pi Sigma – Inducted April 2025

Phi Theta Kappa – Inducted January 2025

American Radio Relay League – HAM Radio Technician

American Astronautical Society – Student Member

American Physical Society – Student Member