

Jésus Miguel Yulo Asunción

 miguelyulo7@gmail.com  www.miguel-yulo.com  (+63) 9173108529

RESEARCH INTERESTS

Modified/alternative theories of gravity, general relativity, black holes, cosmology, stellar astrophysics, nonlinear dynamical systems, chaos theory

EDUCATION

University of Nottingham, UK Doctor of Philosophy in Mathematics Supervisors: Dr. Thomas Sotiriou, Dr. Laura Sberna	2025 -
University of St Andrews, UK Master of Science in Astrophysics, <i>with Distinction</i> Supervisors: Dr. Keith Horne, Dr. Martin Dominik, Dr. Ian Bonnell	2023 - 2024 GPA: 17.2
University of the Philippines Diliman, Philippines Bachelor of Science in Physics, <i>Summa Cum Laude</i> Supervisor: Dr. Ian Vega	2018 - 2022 GWA: 1.1471
Ateneo de Manila Senior High School, Philippines STEM Strand, <i>Valedictorian, First Honors, STEM Strand Award</i>	2016 - 2018

PUBLICATIONS AND PRE-PRINTS

1. Kusano R., Horne K., Koenig F., & **Yulo Asuncion M.** *Loading the stable photon sphere in Weyl conformal gravity metrics*, [arXiv Preprint](#) (2025)
2. Kusano R., **Yulo Asuncion M.**, & Horne K., *Charged black holes in Weyl conformal gravity*, [Classical and Quantum Gravity](#). in press (2025)
3. **Yulo Asuncion M.**, Horne K., Kusano R., & Dominik, M., *Structure of Kerr black hole spacetimes in Weyl conformal gravity*, [Classical and Quantum Gravity](#) 42(21) 215005 (2025)
4. **Yulo JM.** and Vega I., *Strange attractors of long-period variable stars in a one-zone model of stellar pulsation*, [Proceedings of the Samahang Pisika ng Pilipinas \(Philippine Physics Society\)](#) **39**, SPP-2021-1C-04 (2021)

ACADEMIC RESEARCH PROJECTS

School of Mathematical Sciences, University of Nottingham

Title: Black holes beyond GR and the Standard Model 2025 -
Supervisors: Dr. Thomas Sotiriou, Dr. Laura Sberna

School of Physics and Astronomy, University of St Andrews

Title: [Structure of Kerr black hole spacetimes in Weyl conformal gravity](#) 2024
Supervisors: Dr. Keith Horne, Dr. Martin Dominik
We map the spacetime structures and extremal limits of solutions to the rotating Mannheim-Kazanas metric for varying values of the conformal gravity β, γ , and κ parameters.

Title: Accretion and the formation of high mass stars

2024

Supervisor: Dr. Ian Bonnell

We tackle the angular momentum problem of massive star formation by developing a semi-analytic criterion for the accretion of gas and apply it to an N -body simulation of a molecular cloud core.

National Institute of Physics, University of the Philippines Diliman

Title: [Dynamics and strange attractors of stellar pulsation in one-zone models of long-period variable stars](#)

2020 - 2022

Supervisor: Dr. Ian Vega

We discover a phase space equilibrium curve and morphological similarities between the non-adiabaticity and κ -mechanism routes to chaos in one-zone models of variable stars.

TALKS

Structure of Kerr black hole spacetimes in Weyl conformal gravity

Bad Liebenzell, Germany 2024

Contributed Talk

ISAPP School: Neutrinos and Dark Matter

Strange attractors of long-period variable stars in a one-zone model of stellar pulsation [\[Link\]](#)

Online 2021

Contributed Talk

39th Samahang Pisika ng Pilipinas (Philippine Physics Society) Conference

Intracellular biodiesel production and lipid characterization of microalgae isolated from local water environs in the Ateneo de Manila University

Seoul, South Korea 2017

Poster Presentation

International Conference of the Korean Society for Molecular and Cellular Biology

ACADEMIC HONORS AND SCHOLARSHIPS

Distinction Degree Classification

2024

University of St Andrews

Dean's List

2024

University of St Andrews

Vice-Chancellor's International Scholarship (£2,000)

Declined 2023

Cardiff University

Declined due to pursuing MSc Astrophysics at the University of St Andrews

Science and Engineering Global Excellence Scholarship (£2,000)

Declined 2023

Queen Mary University of London

Declined due to pursuing MSc Astrophysics at the University of St Andrews

Summa Cum Laude

2022

University of the Philippines Diliman

Leticia Shahani Award for Best Undergraduate Thesis in Physics (₱10,000)

2022

College of Science, University of the Philippines Diliman

University and College Scholar

2018 - 2022

College of Science, University of the Philippines Diliman

(Semestral Award)

Ateneo Freshman Merit Scholarship (₱200,000)

Declined 2018

Ateneo de Manila University

Declined due to pursuing BS Physics at the University of the Philippines Diliman

SCHOOLS AND WORKSHOPS ATTENDED

SIGRAV International School 2025 [[Link](#)]

Salerno, Italy 2025

Italian Society for General Relativity and Gravitational Physics

XVII Black Holes Workshop [[Link](#)]

Aveiro, Portugal 2024

University of Aveiro

ISAPP School: Neutrinos and Dark Matter [[Link](#)]

Bad Liebenzell, Germany 2024

Karlsruhe Institute of Technology

12th Aegean Summer School [[Link](#)]

Sifnos, Greece 2024

National Technical University of Athens

Advanced School on Quantum Spacetime [[Link](#)]

Warsaw, Poland 2024

University of Warsaw

Star Clusters: The Gaia Revolution [[Link](#)]

Online 2021

Institute of Cosmos Sciences, University of Barcelona

2nd Gravity Group Workshop

Online 2020

[Gravity Group](#), National Institute of Physics, University of the Philippines Diliman

EMPLOYMENT HISTORY

Digital Assets Manager, Canlubang Waterworks Corporation, Philippines

2022 - 2023

- Assisted in the web integration of this provincial utilities company.
- Executed quantitative calculations relating to water flow and distribution.

Debate Coach, Ateneo de Manila Senior High School, Philippines

2018 - 2022

Trained and mentored high school students to become champions and top speakers of dozens of international, regional, and local parliamentary debate competitions.

SKILLS

Programming Languages and Typesetting

Python, Mathematica, Fortran, L^AT_EX

Programming Packages/Libraries

numpy, matplotlib, pandas, astropy, MESA, xCoba, TikZ, etc.

Languages

English, Filipino

Miscellaneous

- Multi-awarded parliamentary debate speaker
- Operations head of numerous debate tournaments

REFERENCES

Keith Horne, Ph.D.

Emeritus Professor

School of Physics and Astronomy, University of St Andrews

kdh1@st-andrews.ac.uk

Martin Dominik, Dr. rer. nat

Reader

School of Physics and Astronomy, University of St Andrews

md35@st-andrews.ac.uk

Ian Vega, Ph.D.

Professor

National Institute of Physics, University of the Philippines Diliman

ivega@nip.upd.edu.ph

Reinabelle Reyes, Ph.D.

Associate Professor

National Institute of Physics, University of the Philippines Diliman

rreyes@nip.upd.edu.ph

Last updated 24 December 2025. Copies of dissertations and documentation available upon request.