

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 St Andrews, UK 2023 - 2024
Master of Science in Astrophysics, *with Distinction* GPA: 17.2
Supervisors: Dr. Keith Horne, Dr. Martin Dominik, Dr. Ian Bonnell

University of the Philippines Diliman, Philippines 2018 - 2022
Bachelor of Science in Physics, *Summa Cum Laude* GWA: 1.1471
Supervisor: Dr. Ian Vega

Ateneo de Manila Senior High School, Philippines 2016 - 2018
STEM Strand, *Valedictorian, First Honors, STEM Strand Award*

PREPRINTS AND PUBLICATIONS

1. **Yulo Asuncion M.**, Horne K., Kusano R., & Dominik, M., *Structure of Kerr black hole spacetimes in Weyl conformal gravity*, [arXiv Preprint \(2025\)](#)
2. **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](#) **39**, SPP-2021-1C-04 (2021)

ACADEMIC RESEARCH PROJECTS

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.
- *Preprint available*

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.
- *Second paper in preparation*

TALKS

Structure of Kerr black hole spacetimes in Weyl conformal gravity Contributed Talk ISAPP School: Neutrinos and Dark Matter	Bad Liebenzell, Germany	2024
Strange attractors of long-period variable stars in a one-zone model of stellar pulsation [Link] Contributed Talk 39 th Samahang Pisika ng Pilipinas (Philippine Physics Society) Conference	Online	2021
Intracellular biodiesel production and lipid characterization of microalgae isolated from local water environs in the Ateneo de Manila University Poster Presentation International Conference of the Korean Society for Molecular and Cellular Biology	Seoul, South Korea	2017

ACADEMIC HONORS AND SCHOLARSHIPS

Distinction Degree Classification University of St Andrews		2024
Dean's List University of St Andrews		2024
Vice-Chancellor's International Scholarship (£2,000) Cardiff University <i>Declined due to pursuing MSc Astrophysics at the University of St Andrews</i>	<i>Declined</i>	2023
Science and Engineering Global Excellence Scholarship (£2,000) Queen Mary University of London <i>Declined due to pursuing MSc Astrophysics at the University of St Andrews</i>	<i>Declined</i>	2023
Summa Cum Laude University of the Philippines Diliman		2022
Leticia Shahani Award for Best Undergraduate Thesis in Physics (₱10,000) College of Science, University of the Philippines Diliman		2022
University and College Scholar College of Science, University of the Philippines Diliman (Semestral Award)		2018 - 2022
Ateneo Freshman Merit Scholarship (₱200,000) Ateneo de Manila University <i>Declined due to pursuing BS Physics at the University of the Philippines Diliman</i>	<i>Declined</i>	2018

SCHOOLS AND WORKSHOPS ATTENDED

SIGRAV International School 2025 [Link] Italian Society for General Relativity and Gravitational Physics	Salerno, Italy	2025
XVII Black Holes Workshop [Link] University of Aveiro	Aveiro, Portugal	2024
ISAPP School: Neutrinos and Dark Matter [Link] Karlsruhe Institute of Technology	Bad Liebenzell, Germany	2024

12th Aegean Summer School [Link] National Technical University of Athens	Sifnos, Greece	2024
Advanced School on Quantum Spacetime [Link] University of Warsaw	Warsaw, Poland	2024
Star Clusters: The Gaia Revolution [Link] Institute of Cosmos Sciences, University of Barcelona	Online	2021
2nd Gravity Group Workshop Gravity Group , National Insitute of Physics, University of the Philippines Diliman	Online	2020

EMPLOYMENT HISTORY

Digital Assets Manager , Canlubang Waterworks Corporation, Philippines <ul style="list-style-type: none"> Assisted in the web integration of this provincial utilities company. Executed quantitative calculations relating to water flow and distribution. 	2022 - 2023
Debate Coach , Ateneo de Manila Senior High School, Philippines Trained and mentored high school students to become champions and top speakers of dozens of international, regional, and local parliamentary debate competitions.	2018 - 2022

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 14 July 2025. Copies of dissertations and documentation available upon request.