

Jésus Miguel Yulo Asunción

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

RESEARCH INTERESTS

Modified/alternative theories of gravity, general relativity, 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
* - Degree to be conferred at graduation in December 2024

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*

PUBLICATIONS

1. **Yulo, J.M.A.** & Vega, M.F.I.G., *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.
- Paper in preparation

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 (*SCHEDULED)

- 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 (Gravity and Cosmology)** [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.
- Performed quality inspections of water sources and distribution lines.

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, \LaTeX

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 23 October 2024. Copies of dissertations and documentation available upon request.