

# YAP Yong Sheng 葉勇陞

✉ [yongsheng\\_yap@live.com](mailto:yongsheng_yap@live.com)

☎ +886 979763037

## Education

### National Tsing Hua University

2019 – Present

Bachelor of Science, in Physics - *In Progress*

- Anticipated Date of Completion: June 2023
- Current GPA: 4.17/4.30 (corresponds to 95.23% in percentage)

## Research Experiences

### Department of Physics, NTHU

2022 – Present

Undergraduate Student, PI: Prof. Po-Yen Tseng

- **Cosmological Signatures of Superradiating Primordial Black Holes**
- Exploring the effects of superradiant clouds formed by rotating primordial black holes on the thermal history of the universe. We currently focus on imprints on the global 21 cm line in the reionization epoch, and hope to extend the discussion to other possible signatures, such as CMB spectral distortions and the gravitational wave stochastic background.

### Institute of Astronomy, NTHU

2020 – 2022

Undergraduate Student, PI: Prof. Andrew Cooper & Prof. Yuan-Sen Ting

- **Obtaining Stellar Labels with DESI - PAYNE**
- Adapted high-resolution stellar spectra from the Dark Energy Spectroscopic Instrument (DESI) to 'The Payne', a pipeline by Prof. Yuan-Sen to simultaneously determine stellar labels such as radial velocity, effective temperature, individual chemical abundances and many more.

### National Center of Theoretical Sciences

Summer 2021

Summer Research Student, PI: Dr. Yen-Hsun Lin and Dr. Meng-Ru Wu

- **Exploring Dark Physics with Neutron Stars**
- Investigated the mass-radius relation for dark matter admixed neutron stars by numerically solving the Tolman-Oppenheimer-Volkoff equations for a two-fluid stellar model.

## Teaching

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- **International Olympiad on Astronomy and Astrophysics (IOAA)** 2018 – Present
  - Designed and edited tasks for the IOAA and the national selection for Malaysia.
  - Taught classes on undergraduate level astronomy, problem solving and observation techniques to finalists of the Malaysian selection programme.
  - Trained and led teams representing Malaysia to the IOAA.
- **Teaching Assistant**, National Tsing Hua University 2021 – Present  
for General Physics, Applied Mathematics, Mechanics, and Thermal & Statistical Physics.
- **Tutor** for International Students, National Tsing Hua University 2022 – Present
  - Held problem solving sessions on General Physics for international students.
- **Lab Assistant**, Kuen Cheng High School, Malaysia 2018, 2019, 2022

## Awards and Honours

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- **Outstanding Academic Achievement Award, NTHU** 2019, 2021 & 2022  
for being the top 5% of students in Physics, Class of 2023.
- **College of Science Elite Student Award, NTHU** 2020 – 2022  
for being the overall best student in Physics, Class of 2023.
- **Scholarship for Excellent Overseas Chinese Students** 2021
- **Country Heights' Scholarship** 2021  
Four-year full-tuition scholarship awarded for academic excellence in high school.
- **Honorable Mention, International Olympiad of Astronomy and Astrophysics** 2016 & 2017

## Community Engagement

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### Commitments

- **Volunteer**, Star-Finder Astronomical Society
  - Volunteered at astronomy outreach events in schools and at public sidewalks.
  - Notable events: IAU100 Moon Landing 50 Global Event
- **Board Member**, Association of the Malaysian Alumni of the International Science Olympiads
  - Promoted the importance of student competitions in local academic education.
  - Provided opportunities for connections, as well as academic and administrative support for local Olympiad selection committees.
- **Content Creator**, FrogAsia
  - Developing a localized multilingual astronomy course on FrogAsia's online education platform.

## **Presentations**

- *“International Olympiad on Astronomy and Astrophysics (IOAA): Selection, Framework, and Influence”*, Global Malaysian Astronomers Convention (2023)
- *“Gravitational Era of Astronomy”*, Kuen Cheng Astronomy Club, Malaysia (2022)
- *“Home Run Through Our Solar Ballpark”*, Chien Kung Senior High School, Taiwan (2020)
- *“Mining Asteroids”*, Chien Kung Senior High School, Taiwan (2020)
- *“Black Holes: A Peek through Space and Time”*, Hin Hua High School, Malaysia (2019)
- *“Black Holes: A Peek through Space and Time”*, National Planetarium, Malaysia (2019)