

# Himawan Wicaksono Winarto

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## Education

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### Princeton University

Princeton, NJ, USA

*Ph.D. Candidate in Plasma Physics (Astrophysical Sciences)*

2018–now

*M.A. awarded in 2020.*

○ **Relevant Coursework:** Machine Learning, Cryptography, Turbulence & Nonlinear Processes, Plasma Astrophysics

*A.B. in Physics, Magna Cum Laude*

2014–2018

○ **Awards:** Phi Beta Kappa Society, Allen G. Shenstone Prize in Physics, Kusaka Memorial Prize in Physics (*received twice*), Manfred Pyka Memorial Prize in Physics

○ **Relevant Coursework:** Econometrics, Microeconomic Theory, Monte Carlo and Molecular Dynamics, Probability and Stochastic Systems, Automatic Control Systems, Biophysics, Electronic Methods in Experimental Physics

### University of Tokyo

Tokyo, Japan

*Exchange Student*

Summer 2016, Summer 2017

Advisor: Prof. Masahiro Hoshino, Dept. Earth and Planetary Sciences

## Experience

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### Princeton University

*Research Assistant – Prof. Matthew Kunz Group*

2020–now

○ Simulated and analyzed highly parallelized simulations on the effects of microinstabilities in astrophysical plasma phenomena.

○ Developed an automated algorithm for saddle point detection, as detailed in Winarto & Kunz (2021).

*Graduate Courses Teaching Assistant*

2021–2023

○ **Courses:** APC 523 (S2021, S2022) *Numerical Algorithms for Scientific Computing*; APC 524 (F2021, F2022) *Software Engineering for Scientific Computing*; AST 552 (S2023) *General Plasma Physics II*; PHY 503, 504, 513, 514 (F2022) *Physics Qualifying Exam Problem Solving Courses*.

○ Developed significant portions of the assignments for all courses and co-wrote the lecture notes in AST 552.

○ Assessed students' final projects across different disciplines in APC 523 and APC 524.

*Research Assistant – Princeton Magnetorotational Instability Experiment*

2017–2020

○ Proposed a new measurement method with high correlations which was first confirmed numerically in undergraduate thesis (2018) and later published in Winarto et al. (2020) and experimentally confirmed by Wang et al. (2022a, 2022b).

*Laboratory Assistant – Prof. Michael Romalis Group*

2015–2016

○ Designed, machined, and tested active magnetic shielding, cell chamber, and the control system for a multiyear experiment measuring anomalous spin-spin interaction with  $10^{-16}$  T precision published in Almasi et al. (2020).

## Organizational Activities

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*PERMIAS Nasional – Organization of the Indonesian Students in the United States*

2020–now

President (2023–2024); Advisory Board Member (2024–now); Director of Academic Development (2020–2023)

○ Organized events for Indonesian students in the USA spread across 106 local chapters.

○ Managed collaborations with Indonesian government entities and prominent companies in the US and Indonesia.

○ Led educational colloquiums and workshops to highlight Indonesian scholars and educational opportunities in the USA.

*Program in Plasma Physics Graduate Student Committee*

2018–2023

Vice Chair (2021–2022), Graduate Student Government Representative (2022–2023), Class Representative (2018–2023).

*Princeton Society of Physics Students (PSPS)*

2014–2018

President (2017–2018), Treasurer (2015–2016)

## Additional Awards

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*Overseas Travel Grant*

2023

American-Indonesian Cultural & Educational Foundation to organize BRIN High Performance Computing Workshop 2023.

*Absolute Winner in 14th Asian Physics Olympiad*

2013

Gold medal and Best Experimental Result with the highest total score out of all participants.

## Skills

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**Languages:** English (*fluent*), Bahasa Indonesia (*native*), Japanese (*JLPT N3*).

**Programming:** C/C++, FORTRAN, Python, OpenMPI, OpenMP, CMake, Git, Docker, CI/CD (Jenkins), OpenACC.

**Certifications:** Consulting, Machinist (metal and wood), High Voltage Experiments.