

## NUR RAHMAWATI AYUKARYANA

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Driven by profound interest in material science and the pursuit of clean energy for a sustainable future, Ayu is a student and researcher in Applied Physics from Indonesia. She is a fast learner with high adaptability in diverse research teams including industry, governmental organization, and academia. While she takes pride in independency, she has a strong belief in the power of collaboration and teamwork to achieve the best result. New challenge and real impact are what motivates her to keep going.

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## EDUCATION

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### Tokyo University of Agriculture and Technology (TUAT)

Master's Student, Applied Physics

*Tokyo, Japan*

Oct. 2022 – Sept. 2024

### Institute of Technology Bandung (ITB)

Student, Engineering Physics (minor: Material Processing)

*Bandung, Indonesia*

Aug. 2017 – April 2022

Grade: Cum Laude

### Tokyo University of Agriculture and Technology (TUAT)

Exchange Student, Applied Physics

*Tokyo, Japan*

Sept. 2019 – Dec. 2019

## RESEARCH EXPERIENCE

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### Superconducting Materials Laboratory at National Institute for Material Science (NIMS)

*Tsukuba, Japan*

Sept. 2023 – Sept. 2024

Research Trainee – Supervisor: Dr. Akihiro Kikuchi, Prof. Hiroaki Kamakura

- Work on the fabrication & development of  $\text{MgB}_2$  superconductor wire by rapid heating and quenching technique to accelerate industrial processes.

### Yamamoto Lab at TUAT

*Tokyo, Japan*

Graduate Researcher – Supervisor: A./Prof. Akiyasu Yamamoto

Oct. 2022 – Sept. 2024

- Conduct research on 122-type Fe-based superconductors, focusing on enhancing critical current density through metal addition, ball-milling, and high-pressure sintering.
- Carry out extensive material characterizations and superconducting properties testing.

### ASEAN Centre for Energy

*Remote*

Research Intern – Supervisor: Beni Suryadi, Akbar Dwi Wahyono, Suwanto

Jun. 2022 – Sept. 2022

- Contributed to energy-related research and stakeholder meetings within the ASEAN (Association of Southeast Asian Nations) region.

### Research School of Physics at Australian National University (ANU)

*Remote*

Visiting Research Student – Supervisor: Prof. Patrick Kluth, Dr. Christian Notthoff

Jun. 2021 – Dec. 2022

- Performed simulations of swift-heavy synchrotron irradiated GaSb using phase field method.

### Advanced Functional Material Lab at ITB

*Bandung, Indonesia*

Research Assistant – Supervisor: Prof. Brian Yulianto, Dr. Ganes Shukri

Dec. 2020 – April 2022

- Analyzed dopants effect to overcome Cu-Zn disorder in CZTS thin film solar cell by DFT (Density Functional Theory) approach.

### Research Centre for Physics at the Indonesian Institute of Sciences (LIPI)

*Remote*

Research Intern – Supervisor: Dr. Eddwi Hesky Hasdeo

Jun. 2020 – Aug. 2020

- Studied the realization of fault-tolerant quantum computer using Majorana fermion-based qubits.

### R&D Physical Sciences Group at IHI Corporation

*Yokohama, Japan*

Research Intern – Supervisor: Dr. Tatsuya Sodekoda

Dec. 2019 – Jan. 2020

- Examined the proper superconducting material for a bending magnet design in a synchrotron project.

### Yamamoto Lab at TUAT

*Tokyo, Japan*

Research Student – Supervisor: A/ Prof. Akiyasu Yamamoto

Oct. 2019 – Dec. 2019

- Fabricated PIT (Powder-In-Tube)  $\text{MgB}_2$  superconductor with Na- and C-based dopants and investigated the microstructural and superconducting properties.

## PUBLICATION

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N. R. Ayukaryana, M. H. Fauzi, E. H. Hasdeo. 2021. [The Quest and Hope of Majorana Zero Modes in Topological Superconductor for Fault-Tolerant Quantum Computing: An introductory Overview](#). *AIP Conference Proceedings* (Vol. 2382, No. 1, p. 020007). (DOI: [10.1063/5.0059974](https://doi.org/10.1063/5.0059974))

## TALK

**N. R. Ayukaryana**, Y. Hasegawa, A. Yamamoto. 2023. [Microstructural Investigation of Ag-added BaFe<sub>1.84</sub>Co<sub>0.16</sub>As<sub>2</sub> Bulk Superconductor](#). *Japan Society of Applied Physics (JSAP) 2023 Spring Meeting*. (Poster presentation)

## PROJECT

- 2023 LION-A Team. [LION Corporation's Strategic Entry into the Indian Market](#). *Presented in the TUAT-Steinbeis University Joint Program Summer 2023 Cohort*.
- 2020 **N. R. Ayukaryana**, N. Abdillah, G. Shukri, B. Yulianto. [Study of Doping Impact on Suppressing Cu-Zn Disorders in CZTS Solar Cell Absorber Layer Bulk](#). *Bachelor thesis*.
- 2019 **N. R. Ayukaryana**, R. Tanaka, K. Nakanishi, A. Yamamoto. [Na-doped and C-doped MgB<sub>2</sub> Superconductor Fabrication through PICT \(Powder-In-Closed-Tube\) Method](#). *Presented at the AIMS program 2019 closing ceremony*. (DOI: [10.13140/RG.2.2.22328.98561](https://doi.org/10.13140/RG.2.2.22328.98561))
- 2019 A. M. Zahra, **N. R. Ayukaryana**, H. Yajun. [MHAEROFILTER: Aerogel for Batik Wastewater Treatment](#). *Pitched at Hult Prize TUAT 2020 competition*.

## HONOR AND AWARD

- 2022 **MEXT Japanese Government Scholarship**, awarded full scholarship for master's degree study.
- 2021 **UCLQ Quantum Tech Summer School 2021**, selected by the UCL Quantum Science and Technology Institute to participate in the summer school.
- 2021 **25<sup>th</sup> AINSE Winter School Scholarship**, selected by AINSE Councilor to learn nuclear technology and facilities available at ANSTO (Australian Nuclear Science Technology Organisation).
- 2020 **ANU FRTA (Australian National University Future Research Talent Award)**, awarded by ANU as one of the Indonesia's emerging research talents to develop research skills in ANU College of Sciences.
- 2019 **Student Representative Speech**, delivered at AIMS TUAT Exchange Program 2019 Closing Ceremony.
- 2019 **Winner of Hult Prize at TUAT**, best team in a business competition held by Hult Prize Foundation. (<https://www.itb.ac.id/news/read/57379/home/a-student-of-itb-led-her-team-to-champion-the-hult-prize-on-campus-in-japan>)
- 2019 **AIMS (ASEAN International Mobility Students) Scholarship**, full scholarship from the Indonesian Ministry of Research Technology and Higher Education for a multilateral exchange program.
- 2019 **JASSO Scholarship for Short-Term Study in Japan**
- 2018 **Unggulan Kemendikbud Scholarship**, awarded for high school student with outstanding achievement to pursue higher education with full tuition fee coverage, thesis and living allowance funded by the Indonesian Ministry of Education and Culture.

## VOLUNTEERING AND LEADERSHIP EXPERIENCE

- Indonesian Student Association at TUAT (PPI Nokodai)** *Tokyo, Japan*  
President *Sept. 2023 – present*
  - Lead the organization to provide support system for Indonesian students at TUAT.
- International Mobility Students Club (IMSC) of ITB** *Bandung, Indonesia*  
President *Mar. 2021 – April 2022*
  - Led the organization to achieve its goal of introducing international mobility for ITB students. (<https://partnership.itb.ac.id/international-mobility-students-club-imsc/>)
- IBM Qiskit Documentation Localization Project** *Remote*  
Contributor *Sept. 2020 – Dec. 2021*
  - Translated the Qiskit documentation from English to Indonesian in a hope to help Indonesian students learning more about quantum computing. (<https://crowdin.com/project/qiskit-docs>)
- Engineering Physics Student Association (HMFT) of ITB** *Bandung, Indonesia*  
Head of Professional Development Division *Mar. 2020 – Feb. 2021*
  - Led a team of 13 to establish programs related to professional development for HMFT fellows.