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Brief Personal Information

Nationality: Indonesian. **Hometown:** Bandung (Indonesia)
Languages: English (fluent), Indonesian (native), Sundanese (native), Japanese (basic), Arabic (basic).

Higher Education

- **Doctor of Science (D.Sc./Ph.D.)**, Department of Physics, Graduate School of Science, Tohoku University, Japan (2013). Funded by Japanese Government through the Monbukagakusho Scholarship (Oct. 2010 – Mar. 2013) and the JSPS Fellowship (Apr. 2013 – Sep 2013). Approved equivalent to "Doktor" (**Dr.**) degree in Indonesia by Ministry of Research, Technology and Higher Education of Indonesia in Dec. 2017. Dissertation title: "Coherent phonon spectroscopy of carbon nanotubes and graphene".
- **Master of Science (M.Sc.)**, Department of Physics, Graduate School of Science, Tohoku University, Japan (2010). Funded by Japanese Government through the Monbukagakusho Scholarship. Thesis title: "Exciton environmental effect of single wall carbon nanotubes".
- **Sarjana Sains (S.Si./equivalent to B.Sc.)**, Department of Physics, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Indonesia (2008).

Work Experience

- **Senior Principal Researcher (Research Professor)**, Research Center for Quantum Physics, National Research and Innovation Agency (BRIN), Indonesia (2024–present).
- **Part-Time Professional Lecturer**, Telkom University, Indonesia (2023–present).
- **Senior Researcher and Director**, Research Center for Quantum Physics, National Research and Innovation Agency (BRIN), Indonesia (2022–2024).
- **Senior Researcher (Assoc. Professorship Level)**, Research Center for Physics, National Research and Innovation Agency (BRIN), Indonesia (2021–2022).
- **Researcher (Assist. Professorship Level)**, Research Center for Physics, Indonesian Institute of Sciences (LIPI), Indonesia (2019–2021).
- **Assistant Professor**, Department of Physics, Graduate School of Science, Tohoku University, Japan (2014–2019). Contracted under the Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders and Leading Graduate School Program of Tohoku University.
- **JSPS Postdoctoral Fellow** at Theoretical Condensed Matter and Statistical Physics Group, Department of Physics, Graduate School of Science, Tohoku University, Japan (2013–2014).

Research Interest

I am working on the intersection of theoretical physics, computational physics, quantum physics, and materials science. In particular, for more than 10 years of my research life, I have mainly focused on **theory and simulation of physical properties of low-dimensional and quantum materials**, with the following streamline of publications:

1. **electromechanics and optomechanics**, especially on understanding charge-induced electromechanical actuators and light-induced mechanical vibrations (phonons) in carbon-based materials,
2. **thermoelectric properties of low-dimensional materials** such as carbon nanotubes, quantum wires, quantum wells, and two-dimensional materials,
3. **theory of spectroscopy**, especially on Raman spectroscopy and ultrafast spectroscopy.

Recently, I have also put a special interest in **open quantum systems**. Within all these research topics, we have published at least **61 papers** in **international journals**, **1 book chapter**, and **1 research textbook**. Most of the papers were published in "traditional" journals maintained by scientific society, such as Physical Review journals, Nano Letters, and Applied Physics Letters. As of January 26, 2026, total citations according to Google Scholar (or Scopus) are 2657 (or 2051) times with h-index = 24 (or 22).

Publications

◯ = either as the first author or equal contributor or corresponding author

Papers in International Journals

61. H. M. Lim, D. Dwiputra, M. S. Ukhtary, **A. R. T. Nugraha**, "Transient Dynamics of the Quantum Stuart-Landau Oscillator", *Phys. Rev. A 112, 043720 (2025)*.
60. S. Y. Pradata, M. A. Amrizal, **A. R. T. Nugraha**, R. Pulungan: "FaultNet-Sim: A C++ simulator for failure-prone wireless sensor networks", *Softw. Impacts* **25**, *100776 (2025)*.
59. H. M. Lim, D. Dwiputra, M. S. Ukhtary, **A. R. T. Nugraha**: "pyBoLaNO: A Python symbolic package for normal ordering involving bosonic ladder operators", *Comput. Phys. Commun.* **313**, *109622 (2025)*.
58. M. N. G. Laksono, M. A. Majidi, ◯ **A. R. T. Nugraha**: "Thermoelectric properties of Type-I and Type-II nodal line semimetals: a comparative study", *Phys. Scr.* **100**, *015970 (2025)*.
57. F. Kengo, S. Solihin, M. S. Ukhtary, J. Suwardy, M. A. Majidi, ◯ **A. R. T. Nugraha**: "Tunable optical absorption in undoped graphene sandwiched between multilayer dielectric stacks with mirror symmetry", *Phys. Scr.* **99**, 035513 (2024).
56. M. S. Ukhtary, **A. R. T. Nugraha**, A. B. Cahaya, A. Rusydi, M. A. Majidi: "High-performance Kerr quantum battery", *Appl. Phys. Lett.* **123**, 034001 (2023).
55. M. Y. Hanna, M. A. Majidi, ◯ **A. R. T. Nugraha**: "Computational study of III–V direct-gap semiconductors for thermoradiative cell applications", *Nanotechnology* **34**, *3153705 (2023)*.
54. J. M. Adhidewata, R. W. M. Komalig, M. S. Ukhtary, **A. R. T. Nugraha**, B. E. Gunara, E. H. Hasdeo: "Trigonal warping effects on optical properties of anomalous Hall materials", *Phys. Rev. B* **107**, 155415 (2023).
53. R. Muslim, S. A. Wella, **A. R. T. Nugraha**: "Phase transition in the majority rule model with the nonconformist agents", *Physica A* **608**, 128307 (2022).
52. M. S. Ukhtary, E. H. Hasdeo, A. B. Suksmono, **A. R. T. Nugraha**, "Long-lived qubit entanglement by surface plasmon polaritons in a Weyl semimetal", *Phys. Rev. B.* **106**, 155409 (2022).
51. A. Darmawan, E. Suprayoga, A. A. AlShaikhi, **A. R. T. Nugraha**: "Thermoelectric properties of two-dimensional materials with combination of linear and nonlinear band structures", *Mater. Today Commun.* **33**, 104596 (2022).
50. A. B. Cahaya, R. M. Sitorus, A. Azhar, **A. R. T. Nugraha**, M. A. Majidi: "Enhancement of spin mixing conductance by s-d orbital hybridization in heavy metals", *Phys. Rev. B* **105**, 214438 (2022).

49. M. S. Muntini, E. Suprayoga, S. A. Wella, I. Fatimah, L. Yuwana, T. Seetawan, A. B. Cahaya, **A. R. T. Nugraha**, E. H. Hasdeo: "Spin-tunable thermoelectric performance in monolayer chromium pnictides", *Phys. Rev. Materials* **6**, 064010 (2022).

48. J. M. Adhidewata, ◯ **A. R. T. Nugraha**, E. H. Hasdeo, P. Estelle, B. E. Gunara: "Thermoelectric properties of semiconducting materials with parabolic and pudding-mold band structures", *Mater. Today. Commun.* **31**, 103737 (2022).

47. R. Muslim, M. J. Kholili, **A. R. T. Nugraha**: "Opinion dynamics involving contrarian and independence behaviors based on the Sznajd model with two-two and three-one agent interactions", *Physica D* **439**, 133379 (2022).

46. N. T. Hung, J. M. Adhidewata, **A. R. T. Nugraha**, R. Saito: "Enhanced thermoelectric performance by van Hove singularities in the density of states of type-II nodal-line semimetals", *Phys. Rev. B* **105**, 115142 (2022).

45. W. V. Sinambela, S. A. Wella, F. S. Arsyad, N. T. Hung, ◯ **A. R. T. Nugraha**: "Electronic, Optical, and Thermoelectric Properties of Bulk and Monolayer Germanium Tellurides", *Crystals* **11**, 1290 (2021).

44. E. Suprayoga, W. B. K. Putri, K. Singsoog, S. Paengson, M. Y. Hanna, **A. R. T. Nugraha**, D. R. Munazat, B. Kurniawan, M. Nurhuda, T. Seetawan, E. H. Hasdeo: "Investigation of electron and phonon transport in Bi-doped $CaMnO_3$ for thermoelectric applications", *Materials Research Bulletin* **141**, 111359 (2021)

43. G. R. Suwito, M. Fukuda, E. Suprayoga, M. Ohtsuka, E. H. Hasdeo, **A. R. T. Nugraha**, M. Sakashita, S. Shibayama, O. Nakatsuka: "Formation of ultra-thin $Ge_{1-x}Sn_x/Ge_{1-x-y}Si_xSn_y$ quantum heterostructures and their electrical properties for realizing resonant tunneling diode", *Applied Physics Letters* **117**, 2321-2324 (2020)

42. C. Euaruksakul, H. Nakajima, A. Rattanachata, M. Y. Hanna, **A. R. T. Nugraha**, M. Boutchich: "Electronic and Thermoelectric Properties of Graphene on 4H-SiC (0001) Nanofacets Functionalized with F4-TCNQ", *Journal of Electronic Materials* **49**, 6872-6880 (2020).

41. N. T. Hung, **A. R. T. Nugraha**, T. Yang, R. Saito: "Confinement Effect in Thermoelectric Properties of Two-dimensional Materials", *MRS Advances* **5**, 469-479 (2020).

40. M. Nurhuda, **A. R. T. Nugraha**, M. Y. Hanna, E. Suprayoga, E. H. Hasdeo: "Thermoelectric properties of Mexican-hat band structures", *Advances in Natural Sciences: Nanoscience and Nanotechnology* **11**, 015012 (2020).

39. K. Zhang, X. Pang, T. Wang, F. Han, S.-L. Shang, N. T. Hung, **A. R. T. Nugraha**, Z.-K. Liu, M. Li, R. Saito, S. Huang: "Anomalous Phonon-mode Dependence in Polarized Raman Spectroscopy of Topological Weyl Semimetal TaP", *Physical Review B* **101**, 014308 (2020).

38. N. T. Hung, ◯ **A. R. T. Nugraha**, R. Saito: "Thermoelectric properties of carbon nanotubes", *Energies* **12**, 4561 (2019).

37. E. H. Hasdeo, L. P. A. Krisna, M. Y. Hanna, B. E. Gunara, N. T. Hung, ◯ **A. R. T. Nugraha**: "Optimal band gap for improved thermoelectric performance of two-dimensional Dirac materials", *J. Appl. Phys.* **126**, 035109 (2019).

36. N. T. Hung, **A. R. T. Nugraha**, R. Saito: "Designing high-performance thermoelectrics in two-dimensional tetradymites", *Nano Energy* **58**, 743-749 (2019).

35. D. Satco, ◯ **A. R. T. Nugraha**, M. S. Ukhtary, D. Kopylova, A. G. Nasibulin, R. Saito: "Intersubband plasmon excitations in doped carbon nanotubes", *Physical Review B* **99**, 075403 (2019).

34. N. T. Hung, **A. R. T. Nugraha**, T. Yang, Z. Zhang, R. Saito: "Thermoelectric performance of monolayer InSe improved by convergence of multivalley bands", *J. Appl. Phys.* **125**, 082502 (2019).

33. N. T. Hung, **A. R. T. Nugraha**, R. Saito: "Universal Curve of Optimum Thermoelectric Figures of Merit for Bulk and Low-dimensional Semiconductors", *Phys. Rev. Applied* **9**, 024019 (2018).

32. N. T. Hung, **A. R. T. Nugraha**, R. Saito: "Two-dimensional MoS_2 electromechanical actuators", *J. Phys. D* **51**, 075306 (2018).

31. N. T. Hung, **A. R. T. Nugraha**, R. Saito: "Three-dimensional carbon Archimedean lattices for high-performance electromechanical actuators", *Carbon* **125**, 472-479 (2017).

30. M. S. Ukhtary, **A. R. T. Nugraha**, R. Saito: "Negative refraction in Weyl semimetals", *J. Phys. Soc. Jpn.* **86**, 104703 (2017).

29. N. T. Hung, ◯ **A. R. T. Nugraha**, R. Saito: "Two-dimensional InSe as a potential thermoelectric material", *Appl. Phys. Lett.* **111**, 092107 (2017).

28. N. T. Hung, **A. R. T. Nugraha**, R. Saito: "Charge-induced electrochemical actuation of armchair carbon nanotube bundles", *Carbon* **118**, 278-284 (2017).

27. Y. Harada, M. S. Ukhtary, M. Wang, S. K. Srinivasan, E. H. Hasdeo, **A. R. T. Nugraha**, G. T. Noe II, Y. Sakai, R. Vajtai, P. M. Ajayan, R. Saito, J. Kono: "Giant attenuation of terahertz waves by monolayer graphene in a total internal reflection geometry", *ACS Photonics* **4**, 121-126 (2017).

26. ◯ **A. R. T. Nugraha**, E. H. Hasdeo, R. Saito: "Selective coherent phonon mode generation in single wall carbon nanotubes", *J. Phys. Condens. Matter* **29**, 055302 (2017).

25. P. Ayria, S. Tanaka, **A. R. T. Nugraha**, M. S. Dresselhaus, R. Saito: "Phonon-assisted indirect transitions in angle-resolved photoemission spectra of graphite and graphene", *Phys. Rev. B* **94**, 075429 (2016).

24. M. S. Ukhtary, **A. R. T. Nugraha**, E. H. Hasdeo, R. Saito: "Broadband transverse electric surface wave in silicene", *Appl. Phys. Lett.* **109**, 063103 (2016).

23. E. H. Hasdeo, **A. R. T. Nugraha**, M. S. Dresselhaus, R. Saito: "Fermi energy dependence of first- and second-order Raman spectra in graphene: Kohn anomaly and quantum interference effect", *Phys. Rev. B* **94**, 075104 (2016).

22. N. T. Hung, E. H. Hasdeo, **A. R. T. Nugraha**, M. S. Dresselhaus, R. Saito: "Quantum effects in the thermoelectric power factor of low dimensional semiconductors", *Phys. Rev. Lett.* **117**, 036602 (2016). ★ **Note:** This paper is highlighted by Phys.org website (August 2016), "Theory of thermoelectric properties updated after 23 years".

21. X. Ling, S. Huang, E. H. Hasdeo, L. Liang, W. M. Parkin, Y. Tatsumi, **A. R. T. Nugraha**, A. A. Puretzky, P. M. Das, B. G. Sumpter, D. B. Geohegan, J. Kong, R. Saito, M. Drndic, V. Meunier, M. S. Dresselhaus: "Anisotropic Electron-Photon and Electron-Phonon Interactions in Black Phosphorus", *Nano Lett.* **16**, 2260-2267 (2016).

20. P. Ayria, **A. R. T. Nugraha**, E. H. Hasdeo, T. R. Czank, S. Tanaka, R. Saito: "Photon energy dependence of angle-resolved photoemission spectroscopy in graphene", *Phys. Rev. B* **92**, 195148 (2015).

19. N. T. Hung, ◯ **A. R. T. Nugraha**, E. H. Hasdeo, M. S. Dresselhaus, R. Saito: "Diameter dependence of thermoelectric power of semiconducting carbon nanotubes", *Phys. Rev. B* **92**, 165426 (2015). ★ **Note:** This paper is highlighted in News and Views section of Nature Energy (2016), "Thermoelectrics: Carbon nanotubes get high".

18. R. Saito, **A. R. T. Nugraha**, E. H. Hasdeo, S. Siregar, H. Guo, T. Yang: "Ultraviolet Raman spectroscopy of graphene and transition-metal dichalcogenides", *Phys. Status Solidi B* **252**, 2363-2374 (2015).

17. M. Shoufie Ukhtary, E. H. Hasdeo, **A. R. T. Nugraha**, R. Saito: "Fermi energy dependence of electromagnetic wave absorption in graphene", *Appl. Phys. Express* **8**, 055102 (2015).

16. ◯ **A. R. T. Nugraha**, E. H. Hasdeo, G. D. Sanders, C. J. Stanton, R. Saito: "Origin of coherent G band phonon spectra in single wall carbon nanotubes", *Phys. Rev. B* **91**, 045406 (2015).

15. E. H. Hasdeo, **A. R. T. Nugraha**, R. Saito, M. S. Dresselhaus: "Breit-Wigner-Fano lineshapes in Raman spectra of graphene", *Phys. Rev. B* **90**, 245140 (2014).

14. Y.-S. Lim, **A. R. T. Nugraha**, S.-J. Cho, M.-Y. Noh, E.-J. Yoon, H. Liu, J.-H. Kim, H. Telg, E. H. Haroz, G. D. Sanders, S.-H. Baik, H. Kataura, S. K. Doorn, C. J. Stanton, R. Saito, J. Kono, T. Joo: "Ultrafast Generation of Fundamental and Multiple-order Phonon Excitations in Highly-Enriched (6,5) Single-Wall Carbon Nanotubes", *Nano Lett.* **14**, 1426-1432 (2014).

13. E. H. Hasdeo, **A. R. T. Nugraha**, K. Sato, R. Saito, M. S. Dresselhaus: "Electronic Raman scattering and the Fano resonance in metallic carbon nanotubes", *Phys. Rev. B* **88**, 115107 (2013).

12. ◯ **A. R. T. Nugraha**, E. Rosenthal, E. H. Hasdeo, G. D. Sanders C. J. Stanton, M. S. Dresselhaus, R. Saito: "Excitonic effects on coherent phonon dynamics in single wall carbon nanotubes", *Phys. Rev. B* **88**, 075440 (2013). ★ **Note:** Figure 2 of this paper is selected as one of the PRB Kaleidoscope images for August 2013.

11. G. D. Sanders, ◯ **A. R. T. Nugraha**, K. Sato, J.-H. Kim, J. Kono, C. J. Stanton, R. Saito: "Theory of coherent phonons in carbon nanotubes and graphene", *J. Phys. Condens. Matter* **25**, 144201 (2013), Invited Review Article.

10. J. H. Kim, **A. R. T. Nugraha**, L. G. Booshehri, E. H. Haroz, K. Sato, G. D. Sanders, K.-J. Yee, Y.-S. Lim, C.-J. Stanton, R. Saito, J. Kono: "Coherent phonons in carbon nanotubes and graphene", *Chem. Phys.* **413**, 55-80 (2013), Invited Special Issue.

9. G. D. Sanders, **A. R. T. Nugraha**, R. Saito, C. J. Stanton: "Coherent radial breathing like phonons in graphene nanoribbons", *Phys. Rev. B* **85**, 205401 (2012).

8. S. Cambre, S. Santos, W. Wenseleers, **A. R. T. Nugraha**, R. Saito, L. Cognet, B. Lounis: "Luminescence properties of individual empty and water-filled single-walled carbon nanotubes", *ACS Nano* **6**, 2649-2655 (2011).

7. ◯ **A. R. T. Nugraha**, G. D. Sanders, K. Sato, C. J. Stanton, M. S. Dresselhaus, R. Saito: "Chirality dependence of coherent phonon amplitudes in single wall carbon nanotubes", *Phys. Rev. B* **84**, 174302 (2011). ★ **Note:** Figure 6 of this paper is selected as one of the PRB Kaleidoscope images for November 2011.

6. M. M. Haque, L. C. Yin, ◯ **A. R. T. Nugraha**, R. Saito: "Vibrational and NMR properties of polyynes", *Carbon* **49**, 3340-3345 (2011).

5. ◯ **A. R. T. Nugraha**, K. Sato, R. Saito: "Confinement of excitons for the lowest optical transition energies of single wall carbon nanotubes", *e-J. Surf. Sci. Nanotech.* **8**, 367-371 (2010).

4. P. T. Araujo, **A. R. T. Nugraha**, K. Sato, M. S. Dresselhaus, R. Saito, A. Jorio: "Chirality dependence of the dielectric constant for the excitonic transition energy of single wall carbon nanotubes", *Phys. Status Solidi B* **247**, 2847-2850 (2010).

3. K. Sato, **A. R. T. Nugraha**, R. Saito: "Excitonic effects on Raman intensity of single wall carbon nanotubes", *e-J. Surf. Sci. Nanotech.* **8**, 358-361 (2010).

2. ◯ **A. R. T. Nugraha**, R. Saito, K. Sato, P. T. Araujo, A. Jorio, M. S. Dresselhaus: "Dielectric constant model for environmental effects on the exciton energies of single wall carbon nanotubes", *Appl. Phys. Lett.* **97**, 091905 (2010).

1. K. Sato, R. Saito, **A. R. T. Nugraha**, S. Maruyama: "Excitonic effects on radial breathing mode intensity of single wall carbon nanotubes", *Chem. Phys. Lett.* **497**, 94-98 (2010).

Book(s)/Book Chapter(s)

1. N. T. Hung, ◯ **A. R. T. Nugraha**, R. Saito: "Quantum ESPRESSO Course for Solid-State Physics", Jenny Stanford Publishing, New York, 2022.

2. R. Saito, **A. R. T. Nugraha**, E. H. Hasdeo, N. T. Hung, W. Izumida: "Electronic and optical properties of single wall carbon nanotubes", in Single-Walled Carbon Nanotubes: Preparation, Property and Application, edited by Y. Li and S. Maruyama, Springer, *Topics in Current Chemistry* **375**, 1-24 (2017).

Awards, Grants, and Scholarships

- **MRS-id Young Scientist Award** (2022). MRS-id is the Materials Research Society of Indonesia.
- **LIPI/BRIN Young Scientist Award** (2019). LIPI was Indonesian Institute of Sciences, integrated into the newly-established National Research and Innovation Agency (BRIN) in 2021. The prize is awarded to promising young scientists in Indonesia, one person every year.
- **Outstanding Reviewer** for "Carbon" (2017). Carbon is a prestigious journal with a high impact factor of 9.594 in 2020.
- **The Japan Society of Applied Physics (JSAP) Outstanding Paper Award** in 2017 for a paper entitled "*Fermi energy-dependence of electromagnetic wave absorption in graphene*", published in Appl. Phys. Express 8, 055102 (2015), written by M. S. Ukhtary, E. H. Hasdeo, A. R. T. Nugraha, and R. Saito.
- **The Japan Society for Promotion of Science (JSPS) Fellowship for Young Scientists** (DC2 to PD scheme), April 2013 - September 2014.
- **Tohoku University Global Center of Excellence Grant for Students**, December 2010 - March 2012.
- **The MEXT (Japanese Government) Scholarship for Master and Doctor Courses** in Tohoku University, Japan, October 2008 - March 2013.
- **The 2nd Most Outstanding Undergraduate Student** (Peringkat II Mahasiswa Berprestasi Utama) at Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung (2007).
- **The Most Outstanding Undergraduate Student** (Mahasiswa Berprestasi Utama) at Department of Physics, Institut Teknologi Bandung (2007).
- **TPB Prize** (Outstanding First-Year Student), Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung (ITB), Indonesia, August 2005, for obtaining a perfect GPA (4.0/4.0) from 36 course credits in the first year at ITB.

Mentorship, Supervision, and Teaching

Mentorship

- **Mentor** of Nguyen Tuan Hung (October 2014 - March 2019), Doctoral Student, Department of Physics, Tohoku University. We published some papers in Physical Review B, Physical Review Letters, Carbon, and other journals.
- **Graduate tutor** for Eddwi Hesky Hasdeo (October 2011 - September 2013), Master Student, Department of Physics, Tohoku University. During that period we co-authored several papers. We now belong to the same group at BRIN Research Center for Quantum Physics.

Official supervision

- **Research Advisor** for Hendry Minfui Lim (February 2024 - December 2024), Research Assistant at BRIN Research Center for Quantum Physics. Research topic: "Transient dynamics and synchronization of quantum oscillators".
- **Research Advisor** for Mohammad Norman Gaza Laksono (September 2023 - August 2024), Research Assistant at BRIN Research Center for Quantum Physics. Research topic: "Thermoelectric properties of nodal line semimetals".
- **Research Advisor** for Solihin (May 2023 - April 2024), Research Assistant at BRIN Research Center for Quantum Physics. Research topic: "Optical properties of graphene metamaterials".

- **Thesis Supervisor** for Muhammad Yusrul Hanna (August 2021 - July 2023), Master Student, Department of Physics, University of Indonesia. Thesis title: "Theory and Simulation of Electronic Structure Effects on the Thermoradiative Cell Performance". Joint supervision with Dr. Muhammad Aziz Majidi.
- **Thesis Supervisor** for Jyesta Mahayu Adhidewata (January 2020 - July 2022), Fast Track Undergraduate-Master Student, Department of Physics, Institut Teknologi Bandung, Indonesia. Final projects: "Thermoelectric properties of a material with pudding-mold band structure" and "Trigonal warping effects on optical properties of anomalous Hall materials". Joint supervision with Dr. Eddwi Hesky Hasdeo and Prof. Bobby Eka Gunara.
- **Thesis Supervisor** for Wenny Valentina Sinambela (August 2020 - May 2022), Master Student, Department of Physics, Sriwijaya University, Indonesia. Thesis title: "Electronic, Optical, and Thermoelectric Properties of Bulk and Monolayer Germanium Tellurides". Joint supervision with Dr. Fitri Suryani Arsyad.
- **Final Project Supervisor** for M. Oktavyan Hardiyono (August 2021 - June 2022), Undergraduate Student, Department of Physics, State University of Malang, Indonesia. Final project: "Monte Carlo simulation of qubit-photon system with Jaynes-Cummings-Rabi model in phase space representation". Joint supervision with Dr. Eny Latifah.
- **Final Project Supervisor** for Siska Apriana Rifianti (August 2020 - June 2021), Undergraduate Student, Department of Physics, State University of Malang, Indonesia. Final project: "Monte Carlo simulation for quantum systems in epistemically-restricted phase-space representation". Joint supervision with Dr. Eny Latifah.
- **Final Project Supervisor** for Assa Eka Oktaviani (August 2019 - June 2020), Undergraduate Student, Department of Physics, State University of Malang, Indonesia. Final project: "Optimization of on/off ratio with Klein tunneling in bilayer graphene as a transistor material". Joint supervision with Dr. Eny Latifah.

Courses/Lectureship

At Telkom University (School of Electrical Engineering), I have been teaching some undergraduate courses as follows:

- Fundamentals of Physics (I & II)
- Introduction to Algorithms and Programming
- Computational Physics / Numerical Methods
- Introduction to Nanoscience and Nanotechnology
- Special Topics in Materials Science

Teaching assistantship

- **Teaching assistant** for Physics B course (October 2010 - February 2011), Department of Physics, Tohoku University. Instructor: Prof. Riichiro Saito.
- **Coordinator of student assistantship** at Elementary Physics Laboratory / Laboratorium Fisika Dasar (August 2007 - June 2008), Institut Teknologi Bandung. Supervisor: Dr. Euis Sustini.
- **Teaching assistant** for Solid State Physics course (January - June 2008), Department of Physics, Institut Teknologi Bandung. Instructor: late Prof. Sukirno.
- **Teaching assistant** for Elementary Physics courses (in academic years 2006/2007 and 2007/2008), Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung. Instructors: late Prof. Sukirno and Prof. Mitra Djamal.

Technical Skills

- **Windows and Linux (*advanced*).** I am experienced with all versions of Windows and also with several distributions of Linux-based operating systems, such as CentOS/RedHat, Ubuntu/Debian, and Slackware.
- **Computer networking and administration (*advanced*).** During graduate course (2008-2013), I was involved in constructing and maintaining several clusters and workstations for computational purpose. From April 2014 until September 2019, I have been trusted as one of the administrators for two lab servers at Tohoku University: http://flex.phys.tohoku.ac.jp and http://www.cmpt.phys.tohoku.ac.jp
- **Programming languages: Fortran (*advanced*), Python (*intermediate*), and C/C++ (*basic*).** I use Fortran and Python mostly for my research and C/C++ occasionally for fun.
- **Markup languages: LaTeX(*advanced*), CSS/HTML (*intermediate*).** I have already been familiar with LaTeX since my undergraduate study, especially for writing research notes, papers, and theses. I am also interested in the website development and have been an experienced WordPress user for more than 10 years. See for example: http://majalah1000guru.net

Miscellaneous

(1) I contributed a short paragraph in IGPAS (International Graduate Program for Advanced Sciences) Booklet 2011, Tohoku University. I shared my experience as an international student in Japan. The booklet can be downloaded from the following link: http://www.sci.tohoku.ac.jp/docs/world-wide/igpas2011.pdf

(2) Together with Professor Riichiro Saito, we promoted IGPAS of Tohoku University to students in Institut Teknologi Bandung and University of Indonesia (8-11 February 2011).

(3) After the 2011 Great Earthquake and Tsunami in Tohoku area, I was involved in some voluntary activities affiliated with the Indonesian Students Association in Japan (Persatuan Pelajar Indonesia di Jepang). We went to several towns for cleaning debris and serving tsunami refugees with Indonesian foods.

(4) In May 2011 - May 2012, I was appointed as the chairman of the Miyagi Branch of Indonesian Students Association in Japan (Persatuan Pelajar Indonesia di Jepang, Komisariat Miyagi, also known as PPI Sendai). In September 2012 - September 2013, I also became one of three chairmen in the central board of Indonesian Student Association in Japan (Persatuan Pelajar Indonesia di Jepang).

(5) My hobbies include various types of sports such as table tennis, futsal/soccer, and pencak silat (Indonesian traditional martial arts). I practice these sports regularly with friends and sometimes we participate in amateur-level tournaments or festivals.