CURRICULUM VITAE

1. Personal Data

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Contact Information	580 Toriba, Maebashi, Gunma 371-8530, Japan TEL: +81-27-254-9154 E-mail: y.nasuda@gunma-ct.ac.jp or y.nasuda.phys@gmail.com
Date and Place of Birth	March 14th, 1996, in Fukui, Japan
Nationality	Japan
Spoken Language	Japanese (native) and English (fluent)

2. Education

March 2024 **Doctor of Science in Theoretical Physics**
Tokyo University of Science, Noda, Japan
Thesis: "Study on a Quantization Condition and the Solvability of Schrödinger-type Equations"
Advisor: Prof. Nobuyuki Sawado

2021 **Master of Science in Theoretical Physics**
Tokyo University of Science, Noda, Japan

2019 **Bachelor of Science in Theoretical Physics**
Tokyo University of Science, Noda, Japan

3. Professional Experience

2026–present **Senior Assistant Professor**
Department of Natural Sciences, National Institute of Technology (KOSEN), Gunma College (Japan)

2024–2026 **Assistant Professor**
Department of Natural Sciences, National Institute of Technology (KOSEN), Gunma College (Japan)

4. Publications

1. Y. Nasuda, "Bessel functions of purely imaginary order and an exactly solvable quantum-mechanical potential," *International Journal of Geometric Methods in Modern Physics* **23**, 2540030 (2026).

2. Y. Nasuda, "Further Interrelations among Conventional Shape-invariant Potentials in terms of SWKB Quantization Condition," *Bulgarian Journal of Physics* **52** (s1), pp. 120–125 (2025).

3. Y. Nasuda, K. Tokeshi and Y. Watanabe, "Scalar field stochastic dynamics in de Sitter spacetime from exact solutions of quantum deficient oscillators," *Progress of Theoretical and Experimental Physics* **2025** (11), 113E01 (2025).

4. Y. Nasuda, "Interrelation among Solvable Potentials and Extensions of SWKB Quantization Condition," arXiv:2507.22381 (2025).

5. Y. Nasuda, "Harmonic Oscillator with a Step and its Wigner Function," in *Lie Theory and Its Applications in Physics, Springer Proceedings in Mathematics & Statistics* **473**, pp. 305–312, Springer (2025).

6. Y. Nasuda and N. Sawado, "Harmonic oscillator with a step and its isospectral properties," *Physica Scripta* **99**, 045212 (2024).

7. Y. Nasuda, "Harmonic Oscillator with a Step and/or a Ramp," *Journal of Physics: Conference Series* **2667**, 012068 (2023).

8. Y. Nasuda and N. Sawado, "SWKB Quantization Condition for Conditionally Exactly Solvable Systems and the Residual Corrections," *Nuclear Physics B* **987**, 116087 (2023).

9. Y. Nasuda, "Several Exactly Solvable Quantum Mechanical Systems and the SWKB Quantization Condition," in *Lie Theory and Its Applications in Physics, Springer Proceedings in Mathematics & Statistics* **396**, pp. 339–349, Springer (2022).

10. Y. Nasuda and N. Sawado, "Numerical study of the SWKB condition of novel classes of exactly solvable systems," *Modern Physics Letters A* **36**, 05 2150025 (2021).

5. **Presentations** (Oral, in English)

1. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," Korea-Japan Workshop: New Perspectives on Cosmology, Seoul, South Korea, August 26th, 2025.

2. Y. Nasuda, "Interrelations among Solvable Problems in Quantum Mechanics and Quantization Rules related to Classical Orthogonal Polynomials," XIII International Symposium on Quantum Theory and Symmetries, Yerevan, Armenia, August 1st, 2025.

3. Y. Nasuda, "Interrelations among solvable problems in quantum mechanics and an extension of SWKB quantization condition," Topical workshop on field theory: chaos, nonlinearity, gravity, and topological solitons, Tokyo University of Science, Noda, Japan, March 14th, 2025.

4. Y. Nasuda, "Bessel Functions of Purely Imaginary Order and an Exactly Solvable Quantum-mechanical Potential," 33rd/35th International Colloquium on Group Theoretical Methods in Physics, Cotonou, Benin, July 15th, 2024.

5. Y. Nasuda, "Quantum Harmonic Oscillator Revisited: Construction of Novel Solvable Quantum-mechanical Potentials," Workshop on solitons: Zero mode, Mechanization, and the dynamics, Tokyo University of Science, Noda, Japan, September 11th, 2023.

6. Y. Nasuda, "SWKB Quantization Condition and Isochronism in Quantum Mechanics," XII. International Symposium on Quantum Theory and Symmetries, Czech Technical University in Prague, July 28th, 2023.

7. Y. Nasuda, "SWKB Formalism for the Modulation of Harmonic Oscillator with Discontinuity," XV. International Workshop LIE THEORY AND ITS APPLICATIONS IN PHYSICS, Varna, Bulgaria, June 21st, 2023.

8. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," MIAMI 2022 Physics Conference, Fort Lauderdale, Florida, United States, December 14th, 2022.

9. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," Centro Brasileiro de Pesquisas Físicas, Brazil, November 23rd, 2022.

10. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," Universidade Federal do ABC, Brazil, November 17th, 2022.

11. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," Instituto de Física Teórica, Brazil, November 16th, 2022.

12. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," Universidade Federal de Santa Catarina, Brazil, November 11th, 2022.

13. Y. Nasuda, "Analytically Solvable Problems in Quantum Mechanics and SWKB Quantization Condition," High Energy Physics Seminars, Instituto de Física de São Carlos; Universidade de São Paulo, Brazil, October 25th, 2022.

14. Y. Nasuda, "Several exactly solvable quantum mechanical systems and the SWKB condition," XIV. International Workshop LIE THEORY AND ITS APPLICATIONS IN PHYSICS, online, June 23rd, 2021.

15. Y. Nasuda, "Exact Solutions in the Neighborhood of Shape Invariance: the Application of SUSY QM," MIAMI 2019 Physics Conference, Fort Lauderdale, Florida, United States, December 17th, 2019.

16. Y. Nasuda, "Several Approaches toward Exact Solutions of SUSY QM in the Neighborhood of Shape Invariance," Workshop on Recent Developments in Mathematical Physics, Osaka Prefecture University, Nakamozu, Japan, October 17th, 2019.

17. Y. Nasuda, "SUSY QM in Few-body Systems —Applications to the singly heavy baryons—," The 7th Workshop on Particle and Mathematical Physics, Kusatsu, Japan, March 15th, 2018.

(Poster, in English)

1. Y. Nasuda, "Non-exactness of SWKB quantization condition and the higher order corrections," YITP Workshop Strings and Fields 2021, online, August 23rd, 2021.

2. Y. Nasuda, "Numerical study of the SWKB condition of novel classes of exactly solvable systems," YITP Workshop Strings and Fields 2020, online, August 23rd, 2020.

3. Y. Nasuda and N. Sawado, "SUSY QM with Conditional Shape Invariance and the Solvability," YITP Workshop Strings and Fields 2019, Kyoto, Japan, August 20th, 2019.

6. Fellowship

2021–2024 Tokyo University of Science SPRING Scholarship Awardee

7. Membership of Societies

- The Mathematical Society of Japan (from 2024)
- The Physical Society of Japan (from 2019)