Curriculum Vitae

Shu Aikawa

Affiliation:
Lasers System Department
Extreme Light Infrastructure - Nuclear Physics
No. 30, Reactorului Street, Magurele, Ilfov, Romania, 077125

Phone:
Email: shu.aikawa@eli-np.ro
Website: https://researchmap.jp/shu_aikawa?lang=en
Nationality: Japanese
Gender: Male
Birth:

Education

Doctor of Philosophy in Science March 2023
Department of Applied Physics, Tokyo University of Science, Tokyo, Japan
- *Development of mid-infrared tunable laser based on transition-metal-doped chalcogenides*

Completed PhD coursework in Physics (All requirements except dissertation) March 2020
School of Science, Department of Physics, Physics Course, Tokyo Institute of Technology, Tokyo, Japan
- *Development of mid-infrared laser for the measurement of muonic hydrogen atom hyperfine splitting energy*
- *Kaonic Helium Atom X-ray Spectroscopy*

Master of Science in Physics October 2016
Department of Fundamental Physics, Tokyo Institute of Technology, Tokyo, Japan
- *Development of mid-infrared laser for the measurement of muonic hydrogen atom hyperfine splitting energy*

Bachelor of Science in Physics March 2013
Department of Physics, Osaka University, Osaka, Japan
- *Development of high-pressure solid deuterium target for muon-catalyzed fusion*

High School Diploma March 2009
Department of Science and Mathematics, Isahaya High School, Nagasaki, Japan

Work Experience

2025–Present Physicist
Lasers System Department, Extreme Light Infrastructure - Nuclear Physics (**Homepage**)

2023–2025 Project Researcher supervised by Prof. Shuichi Hasegawa (**Homepage**)
School of engineering, Nuclear Professional School, The University of Tokyo.

Project: *Arrange individual trapped ions with junction trap*
Keyword: Quantum Information Processing, Ions Trap, Quantum Computing, Laser Cooling.

Curriculum Vitae

2021–2023 Research Fellowship for Young Scientists, Japan Society for the Promotion of Science
supervised by Dr. Satoshi Wada, RIKEN Photonics Control Technology Team (**Homepage**)
and supervised Prof. Tomohiko Saitoh,
Department of Applied Physics, Tokyo University of Science (**Certificate**)

Project: *Development of mid-infrared femtosecond pulse laser using transition metal ion doped chalcogenides*
Keyword: Mid-infrared Laser, Solid-state Laser, Semiconducting II–VI materials

2020-2021 Teaching Assistant, Advanced Electronic Structure of Solids,
Department of Applied Physics, Tokyo University of Science.

2020-2021 Teaching Assistant, Electromagnetics 1B,
Department of Applied Physics, Tokyo University of Science.

2020-2021 Teaching Assistant, Electromagnetics 1A,
Department of Applied Physics, Tokyo University of Science.

2016-2017 Teaching Assistant, Computational Physics (Based on C),
Tokyo Institute of Technology.

2016–2020 Junior Research Associate, Meson Science Laboratory
RIKEN Nishina Center for Accelerator-Based Science (**Certificate**)

Project1: *Development of mid-infrared laser for the measurement of muonic hydrogen atom hyperfine splitting energy*,
Keyword: Nuclear Physics, Accelerator, Mid-infrared Laser, Exiotic atom, Hyperfine structure.

Project2: *Kaonic Helium Atom X-ray Spectroscopy*
Keyword: Nuclear Physics, Accelerator, Silicon Detector, Exiotic Atom.

2013-2013 RIKEN Research Support Staff,
Neutron Beam Technology Team, RIKEN Center for Advanced Photonics (**Homepage**)

Project: *Non-destructive inspection using neutron beam*
Keyword: Neutron Beam, Accelerator, Non-Destructive Inspection.

Awards

2024 The 18th Doctoral Dissertation Award, Tokyo University of Science (Award Certificate)

2023 Academic Encouragement Award, Hisami Matsuzono memorial foundation (Award Certificate)

2023 JSPS HOPE Fellow, 14th HOPE meeting, Japan Society for the Promotion of Science
(Link)(Award Certificate)

2022 Best Team Presentation Award, JSPS 13th HOPE Meeting (Award Certificate)

2022 JSPS HOPE Fellow, 13th HOPE meeting (Link)(Award Certificate)

Grants and Scholarships

2021-2022 JSPS Grant-in-Aid for Young Scientists, Principal Investigator, KAKEN:21J13586
(https://kaken.nii.ac.jp/en/grant/KAKENHI-PROJECT-21J13586/)

Project: *Development of mid-infrared femtosecond pulse laser using transition metal ion doped chalcogenides*,
Total Grant: 1,500,000 JPY (8,744 EURO)

2022-2023 Scholarship, Public Interest Yonehama-Ringerhut Foundation
公益財団法人 米濱・リンガーハット財団
(https://yonehama-rh-found.or.jp)
Total Grant: 240,000 JPY (1,398 EURO).

2022-2023 Scholarship, The Hisami Matsuzono memorial foundation
公益財団法人 松園尚久記念財団
(https://www.mhmf.or.jp)
Total Grant: 840,000 JPY (4,896 EURO).

2020-2023 Scholarship, Public Trust Iwai Hisao Scholarship, Sumitomo Mitsui Trust Bank
公益信託岩井久雄記念東京奨学育英基金, 三井住友信託銀行株式会社
(https://www.smtb.jp)
Total Grant: 1,440,000 JPY (8,393 EURO).

2014-2016 Aoki Akira Memorial Scholarship, Tokyo Institute of Technology (Titech) Memorial Foundation
東工大基金奨学金『青木朗記念奨学金』
(https://www.titech.ac.jp/student-support/students/tuition/giving-scholarships)
Top three students from all master course students in Titech
Total Grant: 1,200,000 JPY (6,995 EURO).

*Caluculated 1 EURO = 171 JPY

Papers

*Major papers are circled in serial numbers.

First Author Papers (all peer-reviewed)

① J-PARC E31 Collaboration: S. Aikawa, and other 75 collaborations, "Pole position of Λ(1405) measured in $d(K^-, n)\pi\Sigma$ reactions", Phys. Lett. B **837**, (2023): 137637-1–8.
DOI: https://doi.org/10.1016/j.physletb.2022.137637

② Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada,"Characterization of Cr:CdSe Master Oscillator Power Amplifier", Sens. Mater. **34**, (2022): SS-4245-1–12.

③ Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada, "Mid-infrared tunable pulsed laser based on Cr^{2+}-doped II–VI chalcogenide " , J. Cryst. Growth **575**, (2021): 126341-1–5.
DOI: 10.1016/j.jcrysgro.2021.126341.

④ S. Aikawa, K. Ishida, M. Iwasaki, S. Kanda, Y. Ma, Y. Matsuda, T. Matsuzaki, K. Midorikawa, Y. Oishi, S. Okada, M. Sato, N. Saito, A. Takamine, K. Tanaka, H. Ueno, S. Wada, and M. Yumoto, "The development of mid-infrared laser for the measurement of muonic hydrogen atom hyperfine splitting energy", RIKEN Accel. Prog. Rep. **49**, (2015): 231-231.

Co-authored Papers (all peer-reviewed)

⑤ T. Hashimoto, S. Aikawa, and other 67 collaborators, "Measurements of Strong-Interaction Effects in Kaonic-Helium Isotopes at Sub-eV Precision with X-Ray Microcalorimeters", Phys. Rev. Lett. **128**(11), (2022): 112503-1–6.
DOI: 10.1103/PhysRevLett.128.112503

6. H. Asano, S. Aikawa, and other 73 collaborators, "Spectroscopic study of the Λ(1405) resonance via the $d(K^-, n)$ reaction at J-PARC", AIP Conf. Proc. **2130**(1), (2019): 040018-1–6.
DOI: https://doi.org/10.1063/1.5118415

7. S. Kawasaki, S. Aikawa, et al., "Λ(1405) Spectroscopy via the In-flight $d(K^-, n)$ Reaction at the J-PARC K1.8BR", The 8th Int. Conf. Quarks and Nuclear Physics Proc., (2018): 022009-1–5.
DOI: https://doi.org/10.7566/JPSCP.26.022009

8. T. Hashimoto, S. Aikawa, et al., "Kaonic atom experiments at J-PARC", The 8th Int. Conf. Quarks and Nuclear Physics Proc., (2018): 023013-1–4.
DOI: https://doi.org/10.7566/JPSCP.26.023013

9. C. Trippl, J. Zmeskal, S. Aikawa, et al., "A New Silicon Drift Detector System for Kaonic Atom Measurements", J. Phys. Conf. Ser. **1138**(1), (2018): 012013-1–8.
DOI: 10.1088/1742-6596/1138/1/012013

10. S. Kanda, K. Ishida, M. Iwasaki, Y. Ma, S. Okada, A. Takamine, H. Ueno, K. Midorikawa, N. Saito, S. Wada, M. Yumoto, Y. Oishi, M. Sato, S. Aikawa, K. S. Tanaka, and Y. Matsuda, "Measurement of the proton Zemach radius from the hyperfine splitting in muonic hydrogen atom", J. Phys. Conf. Ser. **1138**(1), (2018) 012009-1–8.
DOI: 10.1088/1742-6596/1138/1/012009

11. S. Kanda, S. Aikawa, et al., "Development of an intense mid-infrared coherent light source for muonic hydrogen spectroscopy", RIKEN Accel. Prog. Rep. **51**, (2017): 214–214.

12. M. Sato, S. Aikawa, et al., "Background study with negative muons in RIKEN-RAL for the laser spectroscopy of hyperfine splitting energy in muonic hydrogen", RIKEN Accel. Prog. Rep. **50**, (2016): 244–244.

13. Y. Ma, K. Ishida, M. Iwasaki, Y. Matsuzaki, Y. Oishi, S. Okada, M. Sato, K. Midorikawa, N. Saito, S. Wada, S. Aikawa, S. Kanda, Y. Matsuda, K. Tanaka, A. Takamine, "New precision measurement for proton Zemach radius with laser spectroscopy", Int. J. Mod. Phys.: Conf. Ser. **40**, (2016): 166004-1–6. DOI: https://doi.org/10.1142/S2010194516600466

14. S. Okada, S. Aikawa, et al.,"Ultra-slow muon production at RIKEN-RAL port-3 beam line based on muonium emission from silica aerogel", RIKEN Accel. Prog. Rep. **49**, (2015): 228–228.

15. M. Sato, S. Aikawa, et al., "Measurement of the proton Zemach radius from the hyperfine splitting energy in ground-state muonic hydrogen", RIKEN Accel. Prog. Rep. **48**, (2014): 125–125.

Presentations

International Conferences

Invited talk

1. (Oral) Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada, "Mid-Infrared tunable laser based on Cr^{2+}-doped II–VI chalcogenide", The 8th Asian Conference on Crystal Growth and Crystal Technology, C03-02-06 (March 2021)

General Presentations

2. (Poster) Zhang Chao, Shu Aikawa, Ryoma Iwamura, Yuta Yamamoto, Utako Tanaka, Kazuhiro Hayasaka, and Shuichi Hasegawa, "^{40}Ca Ion Trap using Surface Electrode ", Advanced Quantum Technologies for Trapped Ions (July 2025)

3. (Oral) Shu Aikawa, Ryoma Iwamura, Yuta Yamamoto, and Shuichi Hasegawa, "Ion Trap using Microfabricated Electrode ", Advanced Quantum Technologies for Trapped Ions (September 2024)

4. (Poster) Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada, "Development of mid-infrared tunable laser using transition-metal-doped chalcogenide ", JSPS the 14th HOPE meeting, JP-24 (February 2023)

5. (Poster) Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada, "Development of mid-infrared tunable laser using transition-metal-doped II–VI chalcogenide ", JSPS the 13th HOPE meeting, JP-09 (March 2022)

Domestic Conferences in Japan

15 oral presentations, 7 poster presentations.

Language(s)

Mother tongue Japanese

Other language English Advanced Level
referred English Proficiency Test Equivalency Chart
(https://cisl.edu/english-proficiency-test-equivalency-chart/)

Score(s) and License(s)

- TOEIC-IP (990/990), Decemberr 2024
- TOEIC (940/990), November 2022 (https://www.iibc-global.org/english.html)
- EIKEN Pre-1, March 2021 (https://www.eiken.or.jp)
- UNATE Grade B, June 2021 (http://www.kokureneiken.jp)

Outreach

1. Shu Aikawa, "RIKEN 1 day work place experience", Science Agora 2016 Aa-037 (Science Cafe), The National Museum of Emerging Science and Innovation (Miraikan) https://www.jst.go.jp/sis/scienceagora/2016/booth/aa_037.html
2. Shu Aikawa, "Conference where young researchers interact with Nobel Laureates at Tsukuba", Japan Broadcasting Corporation (NHK), https://www3.nhk.or.jp/lnews/mito/20230228/1070020177.html
3. Shu Aikawa, "Energy proposals delivered to the Prime Minister by 60 Japanese university students", DIAMOND ONLINE, https://diamond.jp/articles/15509?page=6
4. Shu Aikawa, "Discussion of the future of energy by university students", NIPPON TV NEWS 24 JAPAN, https://www.news24.jp/articles/2011/12/19/06196609.html

Date 16. 01. 2026

Signature

ANNEX 1

MINIMAL STANDARDS APPLICABLE AT IFIN-HH
for being awarded the professional ranks of
First Stage Researcher (Research Scientist - CS) and
Recognised Researcher (3rd rank Research Scientist - CS III)

Approved in the meeting of IFIN-HH Scientific Council of 27.02.2025 (SC Decision No. 5/27.02.2025)

Minimal Standards (at IFIN-HH)

1) IFIN-HH shall establish threshold scores ($P_{threshold}$) according to the table below.

	First Stage Researcher (CS)	Recognised Researcher (CSIII)
$P_{threshold}$	0.50	1.50

2) During the evaluation of the candidate's scientific activity, the score P is determined in the following manner:

$P=P_1+P_2$, where

P_1 : for articles where the candidate is an author, but not a first author or a corresponding author: $P_1 = \sum_i a_i/n_i^{ef}$

P_2 : for articles where the candidate is a first author or a corresponding author: $P_2 = \sum_i a_i$

a_i = is the absolute Article influence score of the scientific journal where article *i* was published, according to its year of publication as per http://www.eigenfactor.org/ for articles published until 2006 and Journal Citation Report (Web of Science) starting from 2007; if the publishing year cannot be not found in the database, the closest year shall be chosen.

n_i^{ef} = is the actual number of authors of item ***i*** and is determined as follows:

n_i	if $n_i \leq 5$
$(n_i + 5)/2$	if $5 < n_i \leq 15$
$(n_i + 15)/3$	if $15 < n_i \leq 75$
$(n_i + 45)/4$	if $n_i > 75$

where n_i is typically the number of authors of item *i*. In the case of HEPP (High Energy Particle Physics) publications with a large number of authors, if the article is based on an internal note of the collaboration and the candidate is a co-author of this internal note, then n_i^{ef} can be given by the number of authors in the internal note.

The capacity as first author or corresponding author shall be determined based on the mentions in the article. Articles where authors are indicated in the alphabetical order of their name and the candidate is a first author exclusively due to their name and the alphabetical order shall not be taken into account. In the case of HEPP publications with a large number of authors, if the article is based on an internal note whose approval for sending to publication was upheld by the author, then the author is considered first author.

Minimal Standards Self-Assessment Form:

Category of Articles	Position in the List of Papers	Score	Calculation Details
Articles in ISI Thomson Reuters ranked journals and in ISI Proceedings indexed volumes for which the candidate is not a first author or a corresponding author	1	$a_i/n_i^{ef} = 0.102$	Physical Review Letters, 2023; 837:137617-1, AIS=2.885, no. of authors:70, ef no:28.3
Articles in ISI Thomson Reuters ranked journals and in ISI Proceedings indexed volumes for which the candidate is a first author or a corresponding author	1	$a_i = 1.232$	Physics Letters B, 2023; 837:137617-1, AIS=1.232, no. of authors:75
	2	$a_i = 0.120$	SENSORS AND MATERIALS, 2022; 34, SS4245, AIS=0.120, no. of authors:4
	3	$a_i = 0.293$	Journal of Crystal Growth, 2021; 575, 26341, AIS=0.293, no. of authors:4
TOTAL		1.747	

Data

15.01.2026

Signature

Papers

*Major papers are circled in serial numbers.

First Author Papers (all peer-reviewed)

① J-PARC E31 Collaboration: S. Aikawa, and other 75 collaborations, "Pole position of Λ(1405) measured in $d(K^-, n)\pi\Sigma$ reactions", Phys. Lett. B **837**, (2023): 137637-1–8.
DOI: https://doi.org/10.1016/j.physletb.2022.137637

② Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada,"Characterization of Cr:CdSe Master Oscillator Power Amplifier", Sens. Mater. **34**, (2022): SS-4245-1–12.

③ Shu Aikawa, Masaki Yumoto, Tomohiko Saitoh, and Satoshi Wada, "Mid-infrared tunable pulsed laser based on Cr^{2+}-doped II–VI chalcogenide " , J. Cryst. Growth **575**, (2021): 126341-1–5.
DOI: 10.1016/j.jcrysgro.2021.126341.

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DOI: 10.1103/PhysRevLett.128.112503

6. H. Asano, S. Aikawa, and other 73 collaborators, "Spectroscopic study of the Λ(1405) resonance via the $d(K^-, n)$ reaction at J-PARC", AIP Conf. Proc. **2130**(1), (2019): 040018-1–6.
DOI: https://doi.org/10.1063/1.5118415

7. S. Kawasaki, S. Aikawa, et al., "Λ(1405) Spectroscopy via the In-flight $d(K^-, n)$ Reaction at the J-PARC K1.8BR", The 8th Int. Conf. Quarks and Nuclear Physics Proc., (2018): 022009-1–5.
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9. C. Trippl, J. Zmeskal, S. Aikawa, et al., "A New Silicon Drift Detector System for Kaonic Atom Measurements", J. Phys. Conf. Ser. **1138**(1), (2018): 012013-1–8.
DOI: 10.1088/1742-6596/1138/1/012013

10. S. Kanda, K. Ishida, M. Iwasaki, Y. Ma, S. Okada, A. Takamine, H. Ueno, K. Midorikawa, N. Saito, S. Wada, M. Yumoto, Y. Oishi, M. Sato, S. Aikawa, K. S. Tanaka, and Y. Matsuda, "Measurement of the proton Zemach radius from the hyperfine splitting in muonic hydrogen atom", J. Phys. Conf. Ser. **1138**(1), (2018) 012009-1–8.
DOI: 10.1088/1742-6596/1138/1/012009

11. S. Kanda, S. Aikawa, et al., "Development of an intense mid-infrared coherent light source for muonic hydrogen spectroscopy", RIKEN Accel. Prog. Rep. **51**, (2017): 214–214.

12. M. Sato, S. Aikawa, et al., "Background study with negative muons in RIKEN-RAL for the laser spectroscopy of hyperfine splitting energy in muonic hydrogen", RIKEN Accel. Prog. Rep. **50**, (2016): 244–244.

13. Y. Ma, K. Ishida, M. Iwasaki, Y. Matsuzaki, Y. Oishi, S. Okada, M. Sato, K. Midorikawa, N. Saito, S. Wada, S. Aikawa, S. Kanda, Y. Matsuda, K. Tanaka, A. Takamine, "New precision measurement for proton Zemach radius with laser spectroscopy", Int. J. Mod. Phys.: Conf. Ser. **40**, (2016): 166004-1–6. DOI: https://doi.org/10.1142/S2010194516600466

14. S. Okada, S. Aikawa, et al.,"Ultra-slow muon production at RIKEN-RAL port-3 beam line based on muonium emission from silica aerogel", RIKEN Accel. Prog. Rep. **49**, (2015): 228–228.

15. M. Sato, S. Aikawa, et al., "Measurement of the proton Zemach radius from the hyperfine splitting energy in ground-state muonic hydrogen", RIKEN Accel. Prog. Rep. **48**, (2014): 125–125.

Date 16. 01. 2026

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