

Curriculum Vitae

(Last updated: April 1, 2025)

Basic Information

- **Name:** Satoshi TSUCHIYA
- **Current Research Interests:**
 - Pseudogap phenomena and superconductivity in a strongly correlated electron system
 - Development of ultrafast time-resolved spectroscopy under high pressure and low temperature
- **Address:**

Department of Applied Physics, Faculty of Engineering, Hokkaido University
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Educational Background

- Ph. D.: March 2010, Graduate School of Engineering, Hokkaido University
Dissertation: Laboratory Test for The Early Universe: Structural Effects of Hierarchy in Superconducting Networks
(Supervisor: Prof. S. Tanda)
- M. S.: March 2007, Graduate School of Engineering, Hokkaido University
- B. S.: March 2005, Graduate School of Engineering, Hokkaido University

Professional History

- Associate professor (April 2025 - Present)
Faculty of Engineering, Hokkaido University, Research Group of Quantum Matter Physics (Matsuda Group)
- Visiting researcher (September 2017 - June 2018)
Department for Complex Matter (Asoc. Prof. T. Mertelj and Prof. D. Mihailovic),
Jozef Stefan Institute, Slovenia
- Assistant professor (August 2013 - March 2025)
Faculty of Engineering, Hokkaido University, Toda Group
- Project researcher (April 2013 - July 2013)
Institute for Solid State Physics, The University of Tokyo, Uwatoko Group
- Postdoctoral researcher (April 2010 - March 2013)
National Institute for Materials Science, Uji Group

List of Publications

Article in Journals:

† Corresponding author

1. K. Nagata, [†]**S. Tsuchiya**, K. Nakagawa, H. Taniguchi, and Y. Toda
Title: Photoinduced Metal-Insulator Phase Separation Depending on the Conformational Order of Molecules in β -(BEDT-TTF)₂I₃
J. Phys. Soc. Jpn. **94**, 044701 (2025)
2. T. Akiba, Y. Toda, **S. Tsuchiya**, M. Oda T. Kurosawa, D. Mihailovic and T. Mertelj
Title: Photoinduced quasiparticle dynamics of single CuO₂-layer Bi-based cuprates with out-of-plane disorder
Phys. Rev. B **109**, 014503 (2024)
3. **S. Tsuchiya**, N. Kanai, R. Oka, T. Naito, and Y. Toda
Title: Effects of molecular substitution in organic conductors α -(ET)₂I₃ and α -(STF)₂I₃ studied by polarized femtosecond spectroscopy
J. Phys. Soc. Jpn. **92**, 094703 (2023)
4. Y. Toda, **S. Tsuchiya**, K. Yamane, R. Morita, M. Oda T. Kurosawa, T. Mertelj, and D. Mihailovic
Title: Optical vortex induced spatio-temporally modulated superconductivity in a high- T_c cuprate
Optics Express **31**, 17537 (2023)
5. K. Nakagawa, [†]**S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Probing uniform and nonuniform charge ordering with polarized femtosecond optical pulses in geometrically frustrated θ -(BEDT-TTF)₂MZn(SCN)₄ ($M = \text{Rb, Cs}$)
Phys. Rev. Research **5**, 013024 (2023), Erratum
6. K. Nakagawa, T. Sato, [†]**S. Tsuchiya**, J. Yamada, and Y. Toda
Title: Enhancement of polarization anisotropy in ultrafast carrier dynamics by intramolecular excitation in the organic conductor κ -(BEDT-TTF)₂Cu(NCS)₂
Europhys. Lett. **136**, 57001(1-7) (2021)
7. **S. Tsuchiya**, H. Taniguchi, J. Yamada, Y. Toda, D. Mihailovic and T. Mertelj,
Title: Ultrafast dynamics of Mott state quench and formation in strongly correlated BEDT-TTF molecular conductors observed by three-pulse pump probe spectroscopy
Phys. Rev. B **104**, 115152(1-6) (2021)
8. Y. Toda, **S. Tsuchiya**, M. Oda T. Kurosawa, S. Katsumata, M. Naseska, T. Mertelj, and D. Mihailovic
Title: Ultrafast transient reflectivity measurements of optimally doped Bi_{2+x}Sr_{2-x}CaCu₂O_{8+δ} with disorder
Phys. Rev. B **104**, 094507(1-9) (2021)
9. **S. Tsuchiya**, R. Kuwae, T. Kodama, Y. Nakamura, M. Kurihara, T. Yamamoto, T. Naito, and Y. Toda
Title: Electronic Inhomogeneity in an Organic Charge Transfer Salt κ -(BEDT-TTF)₂Cu[N(CN)₂]I Probed by Polarized Femtosecond Spectroscopy
J. Phys. Soc. Jpn. **89**, 064712(1-6) (2020)
10. M. Naseska, P. Sutar, D. Vengust, **S. Tsuchiya**, M. Ceh, D. Mihailovic, and T. Mertelj
Title: Orbitally driven insulator-metal transition in CuIr₂S₄: Temperature dependent transient reflectivity study
Phys. Rev. B **101**, 165134(1-6) (2020)
11. **S. Tsuchiya**, K. Nakagawa, J. Yamada, and Y. Toda
Title: Polarization-resolved ultrafast spectroscopy in an organic Mott insulator κ -(BEDT-TTF)₂Cu[N(CN)₂]Cl
J. Phys. Soc. Jpn. **88**, 074706(1-7) (2019)

12. K. Nakagawa, S. Tsuchiya, J. Yamada, and Y. Toda
Title: Fluctuating superconductivity in strongly correlated organic superconductors probed by polarized time-resolved spectroscopy
[Europhys. Lett. 122, 67003\(1-6\) \(2018\)](#)
13. S. Tsuchiya, K. Nakagawa, J. Yamada, H. Taniguchi, and Y. Toda
Title: Photoinduced phase separation with a local structural ordering in organic molecular conductors
[Phys. Rev. B 96, 134311\(1-6\) \(2017\)](#)
14. S. Tsuchiya, T. Mochiku, S. Ooi, K. Hirata, K. Sugii, T. Terashima, and S. Uji
Title: Diamagnetic torque signal and temperature-dependent paramagnetism in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$
[J. Phys. Soc. Jpn. 86, 114711\(1-5\) \(2017\)](#)
15. S. Tsuchiya, K. Matsubayashi, K. Yamaya, S. Takayanagi, S. Tanda and Y. Uwatoko
Title: Effects of pressure and magnetic field on superconductivity in ZrTe_3 : Local pair-induced superconductivity
[New J. Phys. 19, 063004\(1-10\) \(2017\)](#)
16. S. Tsuchiya, Y. Kino, K. Nakagawa, D. Nakagawa, J. Yamada, Y. Toda
Title: Development of an optical time-resolved measurement system under high-pressure and low-temperature with a piston-cylinder pressure cell
[Rev. Sci. Instrum. 87, 043104\(1-6\) \(2016\)](#)
17. K. Watanabe, S. Tsuchiya, Y. Toda, T. Kurosawa, M. Oda, T. Mertelj, I. Madan, V. V. Kabanov, D. Mihailovic
Title: Time-resolved polarimetry for photoexcited QP dynamics in Bi2212
[Int. J. Mod. Phys. B 29, 1542031\(1-7\) \(2015\)](#)
18. S. Uji, K. Kodama, K. Sugii, T. Terashima, N. Kurita, S. Tsuchiya, M. Kimata, A. Kobayashi, B. Zhou, and H. Kobayashi
Title: Vortex Dynamics and Diamagnetic Torque Signals in Two Dimensional Organic Superconductor λ -(BETS)₂GaCl₄
[J. Phys. Soc. Jpn. 84, 104709\(1-7\) \(2015\)](#)
19. S. Tsuchiya, Y. Sugawara, S. Tanda and Y. Toda
Title: Symmetry-dependent carrier relaxation dynamics and charge-density-wave transition in DyTe₃ probed by polarized femtosecond spectroscopy
[J. Opt. 17, 085501\(1-7\) \(2015\)](#)
20. S. Tsuchiya, J. Yamada, K. Sugii, D. Graf, J. S. Brooks, T. Terashima and S. Uji
Title: Phase Boundary in a Superconducting State of κ -(BEDT-TTF)₂Cu(NCS)₂: Evidence of the Fulde-Ferrell-Larkin-Ovchinnikov Phase
[J. Phys. Soc. Jpn. 84, 034703\(1-6\) \(2015\)](#)
21. T. Isono, H. Kamo, A. Ueda, K. Takahashi, M. Kimata, H. Tajima, S. Tsuchiya, T. Terashima, S. Uji, and H. Mori
Title: Gapless Quantum Spin Liquid in an Organic Spin-1/2 Triangular-Lattice κ -H₃(Cat-EDT-TTF)₂
[Phys. Rev. Lett. 112, 177201\(1-5\) \(2014\)](#)
22. S. Yasuzuka, S. Uji, T. Terashima, S. Tsuchiya, K. Sugii, B. Zhou, H. Kobayashi, and A. Kobayashi
Title: In-Plane Anisotropy of the Flux-Flow Resistivity in the *d*-Wave Organic Superconductor λ -(BETS)₂GaCl₄
[J. Phys. Soc. Jpn. 83, 013705\(1-4\) \(2014\)](#)
23. K. Sugii, K. Takai, S. Tsuchiya, S. Uji, T. Terashima, H. Akutsu, A. Wada, S. Ichikawa, J. Yamada, and T. Enoki
Title: Magnetic Torque Studies of of π -d System κ -(BDH-TTP)₂FeX₄ (X = Br,Cl)
[J. Phys. Soc. Jpn. 83, 023704\(1-4\) \(2014\)](#)

24. T. Terashima, N. Kurita, M. Kimata, M. Tomita, S. Tsuchiya, M. Imai, A. Sato, K. Kihou, C. Lee, H. Kito, H. Eisaki, A. Iyo, T. Saito, H. Fukazawa, Y. Kohori, S. Uji
 Title: Fermi surface in KFe_2As_2 determined via de Haas-van Alphen oscillation measurements
[Phys. Rev. B 87, 224512\(1-13\) \(2013\)](#)
25. S. Tsuchiya, J. Yamada, T. Terashima, N. Kurita, K. Kodama, K. Sugii and S. Uji
 Title: Fluctuating superconductivity in the strongly correlated organic superconductor κ -(BEDT-TTF)₂Cu[N(CN)₂]Br
[J. Phys. Soc. Jpn. 82, 064711\(1-5\) \(2013\)](#)
26. T. Terashima, K. Kihou, M. Tomita, S. Tsuchiya, N. Kikugawa, S. Ishida, C. Lee, A. Iyo, H. Eisaki, and S. Uji
 Title: Hysteretic superconducting resistive transition in $Ba_{0.07}K_{0.93}Fe_2As_2$
[Phys. Rev. B 87, 184513\(1-5\) \(2013\)](#)
27. S. Uji, K. Kodama, K. Sugii, Y. Takahide, T. Terashima, N. Kurita, S. Tsuchiya, M. Kohno, M. Kimata, K. Yamamoto and K. Yakushi
 Title: Kosterlitz-Thouless type transition in charge order state of layered organic conductor α -(BEDT-TTF)₂I₃
[Phys. Rev. Lett. 110, 196602\(1-5\) \(2013\)](#)
28. S. Uji, K. Kodama, K. Sugii, T. Terashima, Y. Takahide, N. Kurita, S. Tsuchiya, M. Kimata, T. Konoike, A. Kobayashi, B. Zhou, and H. Kobayashi
 Title: Orbital Effect on FFLO Phase and Energy Dissipation due to Vortex Dynamics in Magnetic-Field-Induced Superconductor λ -(BETS)₂FeCl₄
[J. Phys. Soc. Jpn. 82, 034715\(1-8\) \(2013\)](#)
29. S. Tsuchiya, J. Yamada, S. Tanda, K. Ichimura, T. Terashima, N. Kurita, K. Kodama, and S. Uji
 Title: Fluctuating superconductivity under in-plane magnetic field for a strongly correlated two-dimensional organic superconductor
[Phys. Rev. B 85, 220506\(R\)\(1-4\) \(2012\)](#)
30. S. Uji, K. Kodama, K. Sugii, T. Terashima, Y. Takahide, N. Kurita, S. Tsuchiya, M. Kimata, A. Kobayashi, B. Zhou, and H. Kobayashi
 Title: Magnetic Torque Studies on FFLO Phase in Magnetic-Field-Induced Organic Superconductor λ -(BETS)₂FeCl₄
[Phys. Rev. B 85, 174530\(1-6\) \(2012\)](#)
31. A. Harada, K. Enomoto, Y. Takahide, M. Kimata, T. Yakabe, K. Kodama, H. Sat-sukawa, N. Kurita, S. Tsuchiya, T. Terashima and S. Uji
 Title: Flow of a Single Magnetic Vortex in a Submicron-Size Superconducting Al Disk Controlled by Radio-Frequency Currents
[Phys. Rev. Lett. 107, 077002\(1-4\) \(2011\)](#)
32. S. Tsuchiya and S. Tanda
 Title: Superconducting Networks with the Proximity Effect
[Europhys. Lett. 94, 47008\(1-5\) \(2011\)](#)
33. H. Nobukane, K. Inagaki, S. Tsuchiya, Y. Asano, K. Ichimura, K. Yamaya, S. Takayanagi, I. Kawasaki, K. Tenya, H. Amitsuka, and S. Tanda
 Title: Transport Properties in a Single Domain of Microscale Sr₂RuO₄ Single Crystals
[Jpn. J. Appl. Phys. 49, 020209\(1-3\) \(2010\)](#)
34. S. Tsuchiya, T. Toshima, H. Nobukane, K. Inagaki, and S. Tanda
 Title: Duality Breaking of Vortex configuration in a Hierarchical Honeycomb Network
[Phys. Rev. B 80, 094502\(1-4\) \(2009\)](#)

Proceedings contributed to International conferences:

1. **S. Tsuchiya**, M. Katsumi, R. Oka, T. Naito, and Y. Toda
Title: Ultrafast pump-probe spectroscopy in organic Dirac electron candidate α -(BETS)₂I₃
Condensed Matter 8, 88 (2023)
2. **S. Tsuchiya**, K. Nagata, H. Taniguchi, Y. Toda
Title: Ultrafast optical spectroscopy in the normal state of organic superconductor β -(BEDT-TTF)₂I₃
JPS Conf. Proc. 38, 011038 (2023)
3. Y. Toda, **S. Tsuchiya**, K. Yamane, R. Morita, M. Oda, T. Mertelj, and D. Mihailovic
Title: Coherent Quench of Superconducting State Using Optical Vortex Pulses
Proceedings of the 2022 Conference on Lasers and Electro-Optics Pacific Rim 1-2, (2022)
4. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, and Y. Toda
Title: Polarized time-resolved spectroscopy of electronic phase separation in a dimer-Mott organic insulator
J. Supercond. Nov. Magn. 33, 2427-2433 (2020)
5. **S. Tsuchiya**, T. Mertelj, D. Mihailovic, J. Yamada, and Y. Toda
Title: Ultrafast Carrier Dynamics in an Organic Superconductor κ -(BEDT-TTF)₂Cu[N(CN)₂]Br by Spectrally Resolved Pump-Probe Spectroscopy
J. Supercond. Nov. Magn. 33, 2299-2303 (2020)
6. Y. Toda, H. Mochizuki, **S. Tsuchiya**, T. Kurosawa, M. Oda, T. Mertelj, D. Mihailovic
Nonequilibrium quasiparticle dynamics in Bi-based superconductors measured by modulation photoexcitation spectroscopy
J. Supercond. Nov. Magn. 31, 753-6 (2018)
7. **S. Tsuchiya**, K. Nakagawa, J. Yamada, and Y. Toda
Title: Carrier relaxation dynamics in the organic superconductor κ -(BEDT-TTF)₂Cu(NCS)₂ under pressure
J. Supercond. Nov. Magn. 29, 3071-4 (2016)
8. K. Nakagawa, **S. Tsuchiya**, J. Yamada, and Y. Toda
Title: Pump- and probe-polarization analyses of ultrafast carrier dynamics in organic superconductors
J. Supercond. Nov. Magn. 29, 3065-9 (2016)
9. T. Terashima, N. Kurita, M. Kimata, M. Tomita, **S. Tsuchiya**, H. Satsukawa, A. Harada, K. Hazama, M. Imai, A. Sato, S. Uji, K. Kihou, C. Lee, H. Kito, Y. Tomioka, T. Ito, A. Iyo, H. Eisaki, T. Liang, M. Nakajima, S. Ishida, S. Uchida, T. Saito, H. Fukazawa, Y. Kohori and H. Harima
Title: Quantum oscillations in iron-based superconductors: BaFe₂As₂ vs. KFe₂As₂
J. Phys.: Conf. Ser. 449, 012022(1-6) (2013)
10. K. Kodama, N. Kurita, **S. Tsuchiya**, T. Terashima, S. Uji, S. Noguchi and T. Sugimoto
Title: Magnetic field effect on charge transport in π -d system (EDT-TTFVO)₂FeBr₄
Phys. Status Solidi C 9, 1202-4 (2012)
11. **S. Tsuchiya** and S. Tanda
Title: Proximity Effect-Induced Superconducting Networks
J. Phys.: Conf. Ser. 150, 022090(1-4) (2009)
12. **S. Tsuchiya**, T. Toshima, H. Nobukane, K. Inagaki, and S. Tanda
Title: Little-Parks Oscillation in a Hierarchical Superconducting Network
J. Phys.: Conf. Ser. 150, 022089(1-4) (2009)
13. H. Nobukane, **S. Tsuchiya**, K. Konno, K. Inagaki, I. Kawasaki, K. Tenya, Y. Maeno, and S. Tanda
Title: Magnetic Rapid Quench Measurement in U(1) and SU(2) superconductor
J. Phys.: Conf. Ser. 150, 052187(1-4) (2009)

14. **S. Tsuchiya**, T. Kikuchi, H. Takahashi, K. Inagaki, and S. Tanda
Title: Experimental study of two and three-dimensional superconducting networks
Proceeding of the 1st international conference on Topology in Ordered Phase, pp 367-371 (2006)

Oral Presentations at International Conferences:

(Displayed only the presentations that S.T. made a considerable contribution)

1. (Invited) **S. Tsuchiya**, N. Kanai, M. Katsumi, R. Oka, T. Naito and Y. Toda
Title: Ultrafast pump-probe spectroscopic study of low-temperature phases in organic Dirac electron systems
International Conference of Superstripes 2023, Ischia, Italy, June 2023
2. (Invited) **S. Tsuchiya**, T. Mertelj, D. Mihailovic, J. Yamada, H. Taniguchi, Y. Toda
Title: A multi pulse optical study on anomalous nonequilibrium polarization dynamics above T_c in organic superconductors
International Conference of Superstripes 2019, Ischia, Italy, June 2019
3. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Photo-induced carrier relaxation dynamics in glassy electronic state of geometrically frustrated organic conductor
International Conference of Superstripes 2019, Ischia, Italy, June 2019
4. (Invited) **S. Tsuchiya**, D. Nakagawa, Y. Toda
Title: Development of optical pump probe spectroscopy under uniaxial pressure: Application to strongly correlated superconductors
Study of Matter at Extreme Conditions 2019, Miami, USA, March - April 2019
5. (Invited) **S. Tsuchiya**, R. Kuwae, T. Kodama, Y. Nakamura, M. Kurihara, T. Yamamoto, T. Naito, Y. Toda
Title: Characterization of electronic states in κ -(BEDT-TTF)₂Cu[N(CN)₂]I by polarized pump probe spectroscopy
Nonequilibrium Phenomena in Quantum Systems, Krvavec, Slovenia, December 2017
6. K. Nakagawa, **S. Tsuchiya**, J. Yamada, and Y. Toda
Title: Electron Correlation Effect on Non-equilibrium Phase Separation Studied by Polarized Femtosecond Spectroscopy
The Emallia Conference 2016 Winter, Hokkaido, Japan, December 2016
7. (Invited) **S. Tsuchiya**, K. Nakagawa, J. Yamada, and Y. Toda
Title: Femtosecond relaxation dynamics in strongly correlated organic superconductors κ -(BEDT-TTF)₂X (X = Cu[N(CN)₂]Br, Cu(NCS)₂)
The EMN Meeting on Ultrafast 2016, Melbourne, Australia, October 2016
8. (Invited) **S. Tsuchiya**, K. Nakagawa, J. Yamada, and Y. Toda
Title: Quasiparticle dynamics in the organic superconductors investigated with polarized femtosecond spectroscopy
International Conference of Superstripes 2016, Ischia, Italy, June 2016
9. (Invited) K. Nakagawa, **S. Tsuchiya**, J. Yamada, and Y. Toda
Title: Fluctuating Superconductivity in the Strongly Correlated Organic Superconductors in κ -(BEDT-TTF)₂X (X = Cu[N(CN)₂]Br, Cu(NCS)₂) Studied by Polarized Femtosecond Spectroscopy
International Conference of Superstripes 2016, Ischia, Italy, June 2016
10. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
Title: Fluctuating superconductivity under in-plane magnetic field in a strongly correlated superconductor κ -(BEDT-TTF)₂Cu[N(CN)₂]Br
International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, Gniezno, Poland, September 2011

11. **S. Tsuchiya**, T. Toshima, H. Nobukane, K. Inagaki, and S. Tanda
Title: Effects of Hierarchical Structure in Superconducting Networks
International Symposium on Nanoscale Transport and Technology, Kanagawa, Japan,
January 2009

Poster Presentations at International Conferences:

(Displayed only the presentations that S.T. made a considerable contribution)

1. Y. Wada, T. Sugioka, **S. Tsuchiya**, H. Taniguchi and Y. Toda
Title: Polarization-resolved ultrafast spectroscopy of charge glass in θ -(BEDT-TTF)₂RbZn(SCN)₂"
The 22nd Japan-Korea-Taiwan Symposium on Strongly Correlated Electron Systems,
Kagoshima, Japan, March 2023
2. **S. Tsuchiya**, K. Nakagawa, H. Taniguchi, and Y. Toda
Title: A glassy structural transition in a charge-frustrated organic conductor probed
by polarized femtosecond spectroscopy
9th International Discussion Meeting on Relaxations in Complex Systems, Chiba,
Japan, August 2023
3. **S. Tsuchiya**, H. Wada, John A. Schlueter and Y. Toda
Title: Ultrafast pump-probe reflectivity study in the normal state of quarter-filled
organic superconductor
International Conference on Quantum Liquid Crystals 2023, Sapporo, Japan, August
2023
4. Y. Wada, **S. Tsuchiya**, H. Taniguchi and Y. Toda
Title: Temperature dependence of photoinduced carrier dynamics in the charge glass
candidate θ -(BEDT-TTF)₂CsCo(SCN)₂"
International Conference on Quantum Liquid Crystals 2023, Sapporo, Japan, August
2023
5. **S. Tsuchiya**, K. Nagata, H. Taniguchi, Y. Toda
Title: Ultrafast optical spectroscopy in the normal state of organic superconductor
 β -(BEDT-TTF)₂I₃
29th International Conference on Low-temperature Physics, Sapporo, August 2022
6. **S. Tsuchiya**, T. Mertelj, D. Mihailovic, H. Taniguchi, Y. Toda
Title: Ultrafast destruction and recovery of the Mott state in κ -(BEDT-TTF)₂Cu[N(CN)₂]Cl
studied by three-pulse pump probe spectroscopy
International Conference on Quantum Liquid Crystals 2021, Online, May 2021
7. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Fluctuating Superconductivity in Partially Deuterated κ -(ET)₂[N(CN)₂]Br Studied by Polarized Time-Resolved Spectroscopy
12th International Symposium on Crystalline Organic Metals, Superconductors and
Magnets, Miyagi, Japan, September 2017
8. T. Sato, **S. Tsuchiya**, J. Yamada, Y. Toda
Title: Effect of rapid cooling on photo-induced carrier dynamics in κ -(BEDT-TTF)₂X
(X = Cu[N(CN)₂]Br and Cu(NCS)₂)
12th International Symposium on Crystalline Organic Metals, Superconductors and
Magnets, Miyagi, Japan, September 2017
9. R. Kuwae, **S. Tsuchiya**, T. Kodama, Y. Nakamura, M. Kurihara, T. Yamamoto, T.
Naito, Y. Toda
Title: Electronic inhomogeneity in organic molecular compound κ -(BEDT-TTF)₂Cu[N(CN)₂]I
probed by polarized femtosecond spectroscopy
12th International Symposium on Crystalline Organic Metals, Superconductors and
Magnets, Miyagi, Japan, September 2017

10. **S. Tsuchiya**, T. Kodama, R. Kuwae, Y. Nakamura, M. Kurihara, T. Yamamoto, T. Naito, Y. Toda
Title: Photo-induced carrier dynamics in the organic superconductor κ -(BEDT-TTF)₂Cu[N(CN)₂]I
6th International Conference on Photoinduced Phase Transitions, Miyagi, Japan, June 2017
11. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Photo-induced Carrier Relaxation Dynamics in Mott Insulator κ -(BEDT-TTF)₂Cu[N(CN)₂]Cl Probed by Probe Polarization
6th International Conference on Photoinduced Phase Transitions, Miyagi, Japan, June 2017
12. **S. Tsuchiya**, K. Nakagawa, J. Yamada, Y. Toda
Title: Photo-induced phase separation in metallic phase of the organic compound κ -(ET)₂Cu(NCS)₂
11th International Symposium on Crystalline Organic Metals, Superconductors and Magnets, Bad Gögging, Germany, September 2015
13. **S. Tsuchiya**, Y. Sugawara, S. Tanda, Y. Toda
Title: Femtosecond pump-probe spectroscopy for a charge-density-wave system of DyTe₃ resolved by the probe polarization
5th International Conference on Photoinduced Phase Transition and Cooperative Phenomena, Bled, Slovenia, June 2014
14. **S. Tsuchiya**, T. Mochiku, S. Ooi, K. Hirata, K. Sugii, T. Terashima, S. Uji
Title: Magnetic torque study on fluctuating superconductivity for Bi₂Sr₂CaCu₂O_{8+x}
The International Conference on Strongly Correlated Electron System, The University of Tokyo, Tokyo, Japan, August 2013
15. **S. Tsuchiya**, D. Fischer, K. Sugii, K. Miyagawa, K. Kanoda, H. Taniguchi, T. Terashima, and S. Uji
Title: Systematic Studies of Fluctuating Superconductivity under In-plane Magnetic Field for κ - and α -Type Organic Superconductors
International Symposium on Material Science Opened by Molecular Degree of Freedom, Miyazaki, Japan, December 2012
16. **S. Tsuchiya**, J. Yamada, T. Terashima, K. Sugii, D. Graf, J. S. Brooks, and S. Uji
Title: FFLO state in the Organic Superconductor κ -(BEDT-TTF)₂Cu(NCS)₂ studied by Magnetic Torque
International School and Symposium on Molecular Materials and Devices, Durham, UK, September 2012
17. **S. Tsuchiya**, J. Yamada, T. Terashima, N. Kurita, K. Kodama, K. Sugii, D. Graf, J. S. Brooks, and S. Uji
Title: High-magnetic-field phase diagram of an organic superconductor κ -(BEDT-TTF)₂Cu(NCS)₂
International Conference on Science and Technology of Synthetic Metals 2012, Atlanta, USA, July 2012
18. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
Title: Fluctuating Superconductivity under In-plane Magnetic Field in Two-Dimensional Organic Superconductor
International School and Symposium on Multifunctional Molecule-based Materials, Argonne National Laboratory, Argonne, USA, March 2011
19. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
Title: Fluctuating Superconductivity in In-plane Magnetic Field for κ -(BEDT-TTF)₂Cu(NCS)₂
Physical Phenomena at High Magnetic Fields VII, Tallahassee, USA, December 2010
20. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
Title: Two-Dimensional Superconductivity in κ -(BEDT-TTF)₂Cu(NCS)₂
Satellite Workshop of ICSM2010, Kashiwa, Japan, July 2010

21. **S. Tsuchiya** and S. Tanda
Title: Proximity Effect-induced Superconductivity in Pb-Au Bilayer Wire Networks
International symposium on topological science and technology for young researchers
2009, Sapporo, Japan, March 2009
22. **S. Tsuchiya** and S. Tanda
Title: Proximity Effect-Induced Superconducting Networks
25th International Conference on Low Temperature Physics, Amsterdam, Netherlands,
August 2008
23. **S. Tsuchiya**, T. Toshima, H. Nobukane, K. Inagaki, and S. Tanda
Title: Little-Parks Oscillation in a Hierarchical Superconducting Network
25th International Conference on Low Temperature Physics, Amsterdam, Netherlands,
August 2008
24. **S. Tsuchiya**, T. Kikuchi, H. Takahashi, K. Inagaki, and S. Tanda
Title: Experimental study of two and three dimensional superconducting networks
The International Conference on Topology in Ordered Phases, Sapporo, Japan, March
2005

Presentations at Domestic Meetings:

(Displayed only the presentations that S.T. made a considerable contribution)

1. Y. Wada, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Observation of anisotropy in charge glass in θ -(BEDT-TTF)₂RbZn(SCN)₄ by
Polarization-resolved ultrafast spectroscopy
The 2024 Annual Meeting of JPS, Hokkaido University, September 2024
2. **S. Tsuchiya**, T. Nakaya, H. Oike, Y. Toda
Title: Development of rapid cooling method by laser substrate heating for controlling
electronic properties of organic conductors
The 2024 Annual Meeting of JPS, Hokkaido University, September 2024
3. Y. Wada, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Study of charge glass in θ -(BEDT-TTF)₂CsCo(SCN)₄ by pump-probe spec-
troscopy with different probe polarizations
The 2024 Spring Meeting of JPS, Online, March 2024
4. Y. Wada, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Photoinduced carrier dynamics in charge glass of θ -(BEDT-TTF)₂CsCo(SCN)₄
The 59th JSAP meeting of Hokkaido branch, Sapporo, January 2024
5. S. Ogami, Y. Toda, **S. Tsuchiya**, M. Oda, T. Kurosawa
Title: Photoinduced quasiparticle dynamics of pseudogap in high-temperature super-
conductor Bi2201
The 59th JSAP meeting of Hokkaido branch, Sapporo, January 2024
6. **S. Tsuchiya**, M. Katsumi, R. Oka, T. Naito, Y. Toda
Title: The origin of the resistivity increase at low temperatures in the organic Dirac
electron system α -(BETS)₂I₃ probed by pump-probe spectroscopy
The 78th Annual Meeting of JPS, Sendai, September 2023
7. M. Katsumi, **S. Tsuchiya**, R. Oka, T. Naito, Y. Toda
Title: Photoinduced carrier dynamics in Dirac fermion system of organic molecular
conductor α -(BETS)₂I₃
The 58th JSAP meeting of Hokkaido branch, Muroran, January 2023
8. **S. Tsuchiya**, N. Kanai, R. Oka, T. Naito, Y. Toda
Title: A ground state in the organic Dirac electron system α -(STF)₂I₃ studied by a
pump probe spectroscopy
The 2022 Autumn Meeting of JPS, Tokyo Institute of Technology, Tokyo, September
2022

9. T. Akiba, **S. Tsuchiya**, Y. Toda, T. Kurosawa, M. Oda
Title: Coherent quench spectroscopy in high-Tc cuprate superconductor Bi2201
The 69th JSAP spring meeting 2022, Online, March 2022
10. **S. Tsuchiya**, K. Nakagawa, H. Taniguchi, Y. Toda
Title: Ultrafast pump probe reflectivity study of the glassy electronic state in organic conductor θ -(BEDT-TTF)₂CsZn(SCN)₂
FYR03 QLC, Online, February 2022
11. K. Nagata, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Photoinduced phase separation with coherent phonon oscillation in organic conductor β -(BEDT-TTF)₂I₃
FYR03 QLC, Online, February 2022
12. K. Nagata, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Investigation of photo-induced metallic-insulating phase separation in the organic conductor β -(BEDT-TTF)₂I₃
The 57th JSAP meeting of Hokkaido branch, Online, January 2022
13. T. Akiba, **S. Tsuchiya**, Y. Toda, T. Kurosawa, M. Oda, T. Mertelj, D. Mihailovic
Title: Photoinduced quasiparticle dynamics in the narrow gap high-Tc cuprate Bi2201
The 57th JSAP meeting of Hokkaido branch, Online, January 2022
14. T. Akiba, **S. Tsuchiya**, Y. Toda, T. Kurosawa, M. Oda, T. Mertelj, D. Mihailovic
Title: Photoinduced quasiparticle dynamics in Bi-based cuprates with disorder
The 2021 Autumn Meeting of JPS, Online, September 2021
15. K. Nagata, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Temperature dependence of photoinduced carrier dynamics in organic superconductor β -(BEDT-TTF)₂I₃
The 76th Annual Meeting of JPS, Online, March 2021
16. **S. Tsuchiya**, T. Akiba, H. Nakamura, M. Sakoda, S. Tanda, Y. Toda
Title: Electronic properties of parent compounds of cuprate superconductors Nd₂CuO₄ studied by an optical pump probe spectroscopy
The 2020 Autumn Meeting of JPS, Kumamoto University, Online, September 2020
17. **S. Tsuchiya**, T. Mertelj, D. Mihailovic, H. Taniguchi, J. Yamada, Y. Toda
Title: Formation of the Mott insulating state under non-equilibrium conditions in organic molecular crystal studied by three-pulse pump probe spectroscopy
The 75th Annual Meeting of JPS, Nagoya University, Aichi, March 2020
18. **S. Tsuchiya**, R. Kuwae, T. Kodama, Y. Toda, Y. Nakamura, M. Kurihara, T. Yamamoto, T. Naito
Title: Electronic inhomogeneity in κ -(BEDT-TTF)₂Cu[N(CN)₂]I probed by optical time-resolved spectroscopy
The 2019 Autumn Meeting of JPS, Gifu University, Gifu, September 2019
19. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Temperature dependence of photo-induced carrier dynamics in θ -(ET)₂MZn(SCN)₄(M=Rb, Cs)
The 2019 Autumn Meeting of JPS, Gifu University, Gifu, September 2019
20. K. Nakagawa, T. Sato, **S. Tsuchiya**, J. Yamada, Y. Toda
Title: Spectrally resolved anomalous nonequilibrium polarization dynamics above T_c in κ -type organic superconductors
The 2019 Autumn Meeting of JPS, Gifu University, Gifu, September 2019
21. **S. Tsuchiya**, T. Mertelj, D. Mihailovic, J. Yamada, Y. Toda
Title: Spectrally resolved pump-probe spectroscopy in the superconducting state of κ -(BEDT-TTF)₂Cu[N(CN)₂]Br
The 74th Annual Meeting of JPS, Kyushu University, Fukuoka, March 2019

22. **S. Tsuchiya**, D. Nakagawa, Y. Toda
Title: Development of ultrafast spectroscopy measurement system under hydrostatic and uniaxial pressure using piston-cylinder type cell and optical fiber bundle
The 59th High Pressure Conference of Japan, Okayama University of Science, Okayama, November 2018
23. **S. Tsuchiya**, D. Nakagawa, Y. Toda
Title: Development of pump probe measurement system under uniaxial pressure
The 2018 Autumn Meeting of JPS, Doshisha University, Kyoto, September 2018
24. **S. Tsuchiya**, K. Nakagawa, H. Taniguchi, Y. Toda
Title: Effects of molecular ordering on photoinduced carrier dynamics in κ -(BEDT-TTF)₂Cu[N(CN)₂]Cl
The 2018 Autumn Meeting of JPS, Doshisha University, Kyoto, September 2018
25. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Temperature dependence of photoinduced carrier dynamics in organic superconductor κ -(ET)₂Cu[N(CN)₂]Br partially substituted by deuterated donors
The 73th Annual Meeting of JPS, Tokyo University of Science, Chiba, March 2018
26. K. Nakagawa, **S. Tsuchiya**, H. Taniguchi, Y. Toda
Title: Exploration of fluctuating superconductivity in organic superconductors near the Mott phase boundary
The 53th JSAP meeting of Hokkaido branch, Hokkaido University, Sapporo, January 2018
27. D. Nakagawa, **S. Tsuchiya**, Y. Toda
Title: Development of optical time-resolved spectroscopy system with a piston-cylinder cell and optical fiber bundle for measurements under uniaxial pressure
The 53th JSAP meeting of Hokkaido branch, Hokkaido University, Sapporo, January 2018
28. T. Sato, **S. Tsuchiya**, J. Yamada, Y. Toda
Title: Photoexcited quasi-particle dynamics in organic superconductors with a rapid cooling
The 53th JSAP meeting of Hokkaido branch, Hokkaido University, Sapporo, January 2018
29. **S. Tsuchiya**, T. Kodama, Y. Nakamura, T. Yamamoto, T. Naito, Y. Toda
Title: Pump-probe time-resolved spectroscopy in κ -(ET)₂Cu[N(CN)₂]I
The 2016 Autumn Meeting of JPS, Kanazawa University, Ishikawa, September 2016
30. K. Nakagawa, **S. Tsuchiya**, J. Yamada, Y. Toda
Title: Fluctuating Superconductivity in κ -(BEDT-TTF)₂X (X=Cu[N(CN)₂]Br, Cu(NCS)₂) Observed by Polarized Femtosecond Spectroscopy
The 2016 Autumn Meeting of JPS, Kanazawa University, Ishikawa, September 2016
31. K. Nakagawa, **S. Tsuchiya**, J. Yamada, Y. Toda
Title: Temperature Dependence of Photoinduced Quasiparticle Relaxation Dynamics in Organic Superconductors κ -(BEDT-TTF)₂X (X=Cu[N(CN)₂]Br, Cu(NCS)₂)
The 50th JSAP meeting of Hokkaido branch, Hokkaido University, Sapporo, January 2016
32. **S. Tsuchiya**, Y. Kino, K. Nakagawa, J. Yamada, Y. Toda
Title: Time-resolved spectroscopy under high pressure and low temperature demonstrated with a piston-cylinder pressure cell
The 2015 Autumn Meeting of JPS, Kansai University, Osaka, September 2015
33. **S. Tsuchiya**, K. Nakagawa, J. Yamada, Y. Toda
Title: Time-resolved pump-probe spectroscopy in κ -(ET)₂Cu(NCS)₂
The 70th Annual Meeting of JPS, Waseda University, Tokyo, March 2015

34. **S. Tsuchiya**, Y. Sugawara, S. Tanda, Y. Toda
 Title: Probe-polarization dependence of photo-induced quasi particle dynamics in the two-dimensional layered compound DyTe₃
 The 2014 Autumn Meeting of JPS, Chubu University, Aichi, September 2014
35. **S. Tsuchiya**, K. Yamaya, S. Takayanagi, S. Tanda, K. Matsubayashi, Y. Uwatoko
 Title: Pressure and magnetic field effect on the mixed bulk-filament superconductivity in ZrTe₃
 The 69th Annual Meeting of JPS, Tokai University, Kanagawa, March 2014
36. **S. Tsuchiya**, D. Fischer, K. Sugii, K. Miyagawa, K. Kanoda, H. Taniguchi, T. Terashima, and S. Uji
 Title: Studies of fluctuating superconductivity for the organic superconductor α -(ET)₂NH₄Hg(SCN)₄
 The 68th Annual Meeting of JPS, Hiroshima University, Hiroshima, March 2013
37. **S. Tsuchiya**, T. Mochiku, S. Ooi, K. Hirata, T. Terashima, K. Sugii, S. Uji
 Title: In-plane magnetic field effect on fluctuating superconductivity in Bi₂Sr₂CaCu₂O_{8+x}
 The Autumn Meeting of JPS, Yokohama National University, Kanagawa, September 2012
38. **S. Tsuchiya**, J. Yamada, T. Terashima, N. Kurita, K. Kodama, K. Sugii, D. Graf, J. S. Brooks, and S. Uji
 Title: Magnetic torque measurement in high magnetic fields for κ -(BEDT-TTF)₂Cu(NCS)₂
 The 67th Annual Meeting of JPS, Kanseigakuin University, Hyogo, March 2012
39. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: In-plane magnetic field effect on fuluctuating superconductivity in κ -(BEDT-TTF)₂X (X = Cu(NCS)₂ and Cu[N(CN)₂]Br)
 The 6th Frontier Meeting, Hotel Iwanumaya, Miyagi, January 2012
40. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: Electron correlation effect on fluctuating superconductivity under in-plane magnetic field in organic superconductors
 The Autumn Meeting of JPS, Toyama University, Toyama, September 2011
41. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: Effects of the in-plane magnetic field on fluctuating superconductivity for κ -(BEDT-TTF)₂Cu[N(CN)₂]Br
 The 5th Frontier Meeting, University of Tokyo, Tokyo, June 2011
42. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: Fluctuating superconductivity under the in-plane magnetic field in two-dimensional organic superconductors
 The 66th Annual Meeting of JPS, Niigata University, Niigata, March 2011
43. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: Effects of the in-plane magnetic field on superconducting fluctuation for κ -(BEDT-TTF)₂Cu(NCS)₂
 The 4th Frontier Meeting, University of Tokyo, Tokyo, January 2011
44. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
 Title: Effects of the in-plane magnetic field on superconducting fluctuation in two-dimensional organic superconductors
 The A03 Group Meeting, Hakone Yumoto Hotel, Kanagawa, November 2010

45. **S. Tsuchiya**, J. Yamada, T. Terashima, A. Harada, N. Kurita, K. Kodama, and S. Uji
Title: Anisotropic superconductivity in κ -(BEDT-TTF)₂Cu(NCS)₂
The Autumn Meeting of JPS, Osaka Prefecture University, Osaka, September 2010
46. **S. Tsuchiya**, T. Toshima, H. Nobukane, K. Inagaki, K. Ichimura, and S. Tanda
Title: Breaking of duality of vortex configuration in hierarchical superconducting networks
The 65th Annual Meeting of JPS, Okayama University, Okayama, March 2010
47. **S. Tsuchiya**, H. Nobukane, T. Toshima, K. Konno, K. Inagaki, and S. Tanda
Title: Little-Parks oscillation in hierarchical superconducting networks The 64th Annual Meeting of JPS, Kinki University, Osaka, March 2009
48. **S. Tsuchiya**, H. Nobukane, T. Toshima, K. Inagaki, and S. Tanda
Title: Property of superconducting hierarchical networks in a magnetic field
The Autumn Meeting of JPS, Chiba University, Chiba, September 2006

Received External Grants:

1. April 2022 - March 2025: Scientific Research (B) (No. 22H01162) from the Japan Society for the Promotion of Science (JSPS)
Title: Exploration of dynamic inhomogeneity of charge-glass transition by 3-pulse femtosecond time-resolved spectroscopy
2. April 2022 - March 2023: Iketani Science and Technology Foundation (Single-year research grant)
Title: Development of ultra-fast electrical conduction conversion organic materials by light.
3. April 2019 - March 2022: Scientific Research (C) (No. 19K03706) from the Japan Society for the Promotion of Science (JSPS)
Title: Observation of charge glass formation dynamics by femtosecond optical excitation and investigation of momentum space structure
4. June 2018: Research found from the JCG-S Scholarship Foundation, Single-year research grant
Title: Study of low power memory device using organic molecular crystal and ultrafast optical pulse laser
5. June 2016: Support for traveling overseas from the Murata Science Foundation
Title: Quasiparticle dynamics in the organic superconductors investigated with polarized femtosecond spectroscopy
6. 2015: Research support received from HOKKAIDO GAS CO., LTD
Title: Fundamental research for electronic lead-less pressure sensor with organic conductors
7. April 2015 - March 2018: Young Scientists (B) (No. 15K17685) from the Japan Society for the Promotion of Science (JSPS)
Title: Research for pseudogap in organic superconductors by pump-probe time-resolved spectroscopy
8. April 2014 - March 2015: Toyota Physical and Chemical Research Institute Scholars
Title: Development of Pump-Probe measurement technique under pressure toward understanding of the pseudo-gap phenomena in high-T_c superconductors
9. April 2012 - March 2014: Young Scientists (B) (No. 24740246) from the Japan Society for the Promotion of Science (JSPS)
Title: Anisotropic magnetic field effect on fluctuating superconductivity in a strongly correlated electron system

Received internal Grants:

1. 2017: Fund of overseas research program of faculty of engineering in Hokkaido University
Place: Jozef Stefan Institute, Slovenia
2. August 2015: Support for English proofreading in faculty of engineering of Hokkaido university
Title: Symmetry-dependent carrier relaxation dynamics and charge-density-wave transition in DyTe₃ probed by polarized femtosecond spectroscopy
3. 2015: Grant of traveling overseas for young researchers in faculty of engineering in Hokkaido university
Title: Photo-induced quasi particle dynamics in the organic superconductor κ -(ET)₂Cu(NCS)₂

Seminar:

1. Jun. 22, 2018: Department seminar at Jozef Stefan Institute, Slovenia
Title: Spectrally-resolved and three-pulse pump probe spectroscopy in strongly correlated organic conductors: Measurement results in my visit
2. Sep. 21, 2017: Department seminar at Jozef Stefan Institute, Slovenia
Title: Photoinduced carrier dynamics in organic superconducting system: Previous results and Recent progress
3. Sep. 4, 2015: Department seminar at Jozef Stefan Institute, Slovenia
Title: Femtosecond pump-probe spectroscopy for organic superconductors resolved by the probe polarization
4. Feb. 14, 2014: Seminar at Laboratory of electronic properties of low-dimensional conductors, Hokkaido University
Title: Fluctuating superconductivity in strongly correlated two-dimensional organic superconductors
5. Aug. 31, 2012: 174th Enreiso Meeting, Hokkaido University
Title: In-plane magnetic field effect on fluctuating superconductivity in two-dimensional organic superconductors

Academic activities:

- Apr. 2024 - present: The Physical Society of Japan Hokkaido Branch, Organizing committee (General affairs)
- Apr. 2022 - present: The Physical Society of Japan Hokkaido Branch, Organizing committee (Accountant)
- Apr. 2020 - Mar. 2021: The Physical Society of Japan, Division 7 organizing committee
- 2019: Local Organizing Committee, The 60th High Pressure Conference of Japan

Lecture:

- Jun. 21, 2025: A lecture on the semiconductor industry at Kitahiroshima High School
- Nov. 12, 2024: A lecture on the semiconductor industry at Haboro High School
- 2024: Student experiment I, II,
- 2023: Student experiment I, II,
- 2022: Student experiment I, Special Lectures on Topological Science and Technology
- 2021: Student experiment I
- 2020: Student experiment I, Special Lectures on Topological Science and Technology
- 2019: Student experiment I, II

- 2018: Student experiment I, Special Lectures on Topological Science and Technology
- 2017: Student experiment II
- 2016: Student experiment I, II
- 2015: Student experiment I, II, Special Lectures on Topological Science and Technology
- 2014: Student experiment I, II, Special Lectures on Topological Science and Technology
- 2013: Student experiment I