Kohsaku Tobioka

Curriculum Vitae

Institution:	Department of Physics, College of Arts and Sciences, Florida State University, 506 Keen Building, 77 Chieftan Way, Tallahassee, Florida 32306-4350, USA
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Education

March 2014	Ph.D., Physics, University of Tokyo, Japan Dissertation: *"Aspects of Supersymmetry after LHC Run I"* Advisor: Prof. Hitoshi Murayama, Date of Completion: March 24, 2014
March 2011	M.Sc., Physics, University of Tokyo, Japan Thesis: *"Physics of the Minimal Universal Extra Dimension model at the LHC experiments"* Advisor: Prof. Hitoshi Murayama, Date of Completion: March 24, 2011
March 2009	B.Sc., Physics, Tohoku University, Japan Date of Completion: March 25, 2009

Education at other institutions

September 2012–March 2013 and January–May 2012	Visiting Student Researcher, University of California, Berkeley, USA
September 2007–June 2008	Exchange Student, major in Physics, University of California, San Diego, USA

Professional Experience

August 2018–present	*Assistant Professor* at Florida State University, USA
July 2017–August 2018	*Postdoctoral Associate* at C.N. Yang Institute for Theoretical Physics, Stony Brook University, USA
October 2014–June 2017	*Postdoctoral Fellow (joint appointment)* at Tel Aviv University and Weizmann Institute of Science, Israel Host researchers: Prof. Tomer Volansky and Prof. Gilad Perez
April–September 2014	*Postdoctoral Fellow* at High Energy Accelerator Research Organization (KEK), Japan Host researcher: Prof. Ryuichiro Kitano

Other Professional Appointments

September 2018–present	*Associate Researcher* at KEK Theory Center, Japan

Research Interests

Theoretical Particle Physics: *Physics Beyond the Standard Model, Higgs boson, Collider phenomenology, Axion, Supersymmetry, Extra Dimensions.*
Cosmology: *Inflation, Dark matter, Big Bang nucleosynthesis.*

Languages

Native tongue:	Japanese
Fluent:	English

Honors

April 2014–March 2016	Japan Society for the Promotion of Science (JSPS) Research Fellow for Young Scientists [PD]
April 2012–March 2014	JSPS Research Fellow for Young Scientists [DC2]

Grants

2024	FSU-CRC Summer Research Support. As a PI, project: "Mystery of Neutrinos After the Next Generation Experiments". Total award $20,000.
2023	Department of Energy DE-FOA-0002546, USA (DE-SC0010102). Supplemental funds for Okui and Tobioka. Total award $21,000.
2022–2025	Department of Energy DE-FOA-0002546, USA (DE-SC0010102). As a Co-PI of FSU HEP-TH&EX group including 9 PIs, project: "Probing Testable New Physics at the Intensity and Energy Frontiers". Total award $2,720,000.
2021–2024	JSPS Grant-in-Aid for Scientific Research (B), Japan (No. 82118-041-15-0008) as a Co-PI with Motoi Endo (PI), Ryuichiro Kitano (Co-PI), Takemichi Okui (Co-PI). Project: "Exploring Quark and Lepton Structure via Light Particles". Total award $119,000.
2019–2022	Department of Energy DE-FOA-0001961, USA (DE-SC0010102). As a Co-PI of FSU HEP-TH&EX group including 8 PIs, project: "New Observables for New Physics at the Energy and Intensity Frontiers". Total award $2,247,000.
2019	FSU-CRC First Year Assistant Professor award. As a PI, project: "Diphoton Resonance of New Elementary Particle". Total award $20,000.
2014–2016	Grant-in-Aid for JSPS Fellows, Japan (No. 14J00179). Project: "Beyond the Standard Model of Particle Physics at a TeV scale". The total Award is 4,030,000 JPY (approximately $34,900).
2012–2014	Grant-in-Aid for JSPS Fellows, Japan (No. 12J09059). Project: "Dark Matter and Electroweak Phase Transition at a TeV scale". Total award 1,800,000 JPY (approximately $15,600).

Teaching

2049C [General Physics B]	2018 Fall, 2019 Spring
PHZ5355 [High Energy Physics II]	2020 Spring
PHY5346 [Graduate Electrodynamics A]	2020/2022/2023 Fall
PHY5347 [Graduate Electrodynamics B]	2021/2023/2024 Spring

Mentorship

Sabyasachi Chakraborty	Postdoc, '18-'21 (now junior faculty at IIT Kanpur, India).
Tae Hyun Jung	Postdoc, '19-'22 (now junior faculty at IBS, South Korea).
Kare Fridell	Postdoc (jointly with KEK), '22-'24.
Mitrajyoti Ghosh	Postdoc, '23-Present.
Vazha Loladze	Graduate student (Okui's student), '18-'23 (now postdoc at Oxford Univ, UK).
Shameran Mahmud	Graduate student, '19-Present.
Jiabao Wang	Graduate student, '22-Present.

Synergetic Activities

- Outreach Lectures for Saturday Morning Physics at Florida State University: "Particle Physics –What Matter Is and How We Know–", Oct. 26, 2019; "Particle Physics –What Matter Is and How We Know–", Oct. 16, 2021; "Particle Physics –Understanding the universe from the subatomic scale–", Oct. 29, 2022; "Particle Physics –Understanding the universe by catching a ghost–", Oct. 14, 2023.
- Demonstrator, Physics Department Open House at Florida State University in 2023.
- Snowmass 2021 activities. Submit a letter of interest "Probing the Dark Sector at Kaon Factories" (URL) in Rare Processes and Precision Frontier, and as one of four editors organize a contributed paper "New Physics Searches at Kaon and Hyperon Factories" (64 contributors).
- Organizing committee of Dirac Lectures: "Gravitational Waves" (2020) and "Quantum Information Science" (2021).
- Organizer of KEK-FSU joint workshop "New Ideas in Particle Physics" (URL), Nov. 16-17, 2021.
- Lecture for HEP experimentalists at postdoctoral level at Lake Louise Winter Institute 2020, Canada.

Referees of international peer reviewed journals

Physical Review Letters, Physical Review D, Journal of High Energy Physics, Physics Letters B, The European Physical Journal C. *The area includes the theoretical and experimental high energy physics.*

Publications

[1] K. Fridell, M. Ghosh, T. Okui, and K. Tobioka. "Decoding the $B \to K\nu\nu$ excess at Belle II: kinematics, operators, and masses" (Dec. 2023). arXiv: 2312.12507 [hep-ph].

[2] S. Girmohanta, Y. Nakai, Y. Shigekami, and K. Tobioka. "Light dilaton in rare meson decays and extraction of its CP property". *JHEP* 01 (2024), p. 153. DOI: 10.1007/JHEP01(2024)153. arXiv: 2310.16882 [hep-ph].

[3] T. Kitahara and K. Tobioka. "MeV sterile neutrino in light of the Cabibbo-angle anomaly". *Phys. Rev. D* 108.11 (2023), p. 115034. DOI: 10.1103/PhysRevD.108.115034. arXiv: 2308.13003 [hep-ph].

[4] Y. Afik, B. Döbrich, J. Jerhot, Y. Soreq, and K. Tobioka. "Probing long-lived axions at the KOTO experiment". *Phys. Rev. D* 108.5 (2023), p. 055007. DOI: 10.1103/PhysRevD.108.055007. arXiv: 2303.01521 [hep-ph].

[5] T. Kitahara and K. Tobioka. "Sterile neutrinos in light of the Cabibbo-angle anomaly". *J. Phys. Conf. Ser.* 2446.1 (2023), p. 012009. DOI: 10.1088/1742-6596/2446/1/012009.

[6] K. Tobioka. "Light new particles at the kaon experiments". *J. Phys. Conf. Ser.* 2446.1 (2023), p. 012028. DOI: 10.1088/1742-6596/2446/1/012028.

[7] E. Goudzovski et al. "Weak Decays of Strange and Light Quarks" (Sept. 2022). arXiv: 2209.07156 [hep-ex].

[8] M. M. Nojiri, Y. Sakaki, K. Tobioka, and D. Ueda. "First evaluation of meson and τ lepton spectra and search for heavy neutral leptons at ILC beam dump". *JHEP* 12 (2022), p. 145. DOI: 10.1007/JHEP12(2022)145. arXiv: 2206.13523 [hep-ph].

[9] A. Aryshev et al. "The International Linear Collider: Report to Snowmass 2021" (Mar. 2022). arXiv: 2203.07622 [physics.acc-ph].

[10] E. Goudzovski et al. "New physics searches at kaon and hyperon factories". *Rept. Prog. Phys.* 86.1 (2023), p. 016201. DOI: 10.1088/1361-6633/ac9cee. arXiv: 2201.07805 [hep-ph].

[11] E. Bertholet, S. Chakraborty, V. Loladze, T. Okui, A. Soffer, and K. Tobioka. "Heavy QCD axion at Belle II: Displaced and prompt signals". *Phys. Rev. D* 105.7 (2022), p. L071701. DOI: 10.1103/PhysRevD.105.L071701. arXiv: 2108.10331 [hep-ph].

[12] P. Agrawal et al. "Feebly-interacting particles: FIPs 2020 workshop report". *Eur. Phys. J. C* 81.11 (2021), p. 1015. DOI: 10.1140/epjc/s10052-021-09703-7. arXiv: 2102.12143 [hep-ph].

[13] S. Chakraborty, M. Kraus, V. Loladze, T. Okui, and K. Tobioka. "Heavy QCD axion in b→s transition: Enhanced limits and projections". *Phys. Rev. D* 104.5 (2021), p. 055036. DOI: 10.1103/PhysRevD.104.055036. arXiv: 2102.04474 [hep-ph].

[14] A. Falkowski, S. Ganguly, P. Gras, J. M. No, K. Tobioka, N. Vignaroli, and T. You. "Light quark Yukawas in triboson final states". *JHEP* 04 (2021), p. 023. DOI: 10.1007/JHEP04(2021)023. arXiv: 2011.09551 [hep-ph].

[15] S. Chakraborty, T. H. Jung, V. Loladze, T. Okui, and K. Tobioka. "Solar origin of the XENON1T excess without stellar cooling problems". *Phys. Rev. D* 102.9 (2020), p. 095029. DOI: 10.1103/PhysRevD.102.095029. arXiv: 2008.10610 [hep-ph].

[16] S. Gori, G. Perez, and K. Tobioka. "KOTO vs. NA62 Dark Scalar Searches". *JHEP* 08 (2020), p. 110. DOI: 10.1007/JHEP08(2020)110. arXiv: 2005.05170 [hep-ph].

[17] G. Brooijmans et al. "Les Houches 2019 Physics at TeV Colliders: New Physics Working Group Report". *11th Les Houches Workshop on Physics at TeV Colliders: PhysTeV Les Houches*. Feb. 2020. arXiv: 2002.12220 [hep-ph].

[18] T. Kitahara, T. Okui, G. Perez, Y. Soreq, and K. Tobioka. "New physics implications of recent search for $K_L \to \pi^0 \nu\bar{\nu}$ at KOTO". *Phys. Rev. Lett.* 124.7 (2020), p. 071801. DOI: 10.1103/PhysRevLett.124.071801. arXiv: 1909.11111 [hep-ph]. Selected as **PRL Editors' Suggestion** and **Cover of the Issue**. Featured in *APS Synopsis*, *APS tip sheet*, *Science News*, *Phys.org*, *Popular Mechanics*, and *FSU News*.

[19] G. Krnjaic, G. Marques-Tavares, D. Redigolo, and K. Tobioka. "Probing Muonphilic Force Carriers and Dark Matter at Kaon Factories". *Phys. Rev. Lett.* 124.4 (2020), p. 041802. DOI: 10.1103/PhysRevLett.124.041802. arXiv: 1902.07715 [hep-ph].

[20] X. Cid Vidal et al. "Beyond the Standard Model Physics at the HL-LHC and HE-LHC" (2018). arXiv: 1812.07831 [hep-ph].

[21] X. Cid Vidal, A. Mariotti, D. Redigolo, F. Sala, and K. Tobioka. "New Axion Searches at Flavor Factories". *JHEP* 01 (2019), p. 113. DOI: 10.1007/JHEP01(2019)113. arXiv: 1810.09452 [hep-ph].

[22] A. Mariotti, D. Redigolo, F. Sala, and K. Tobioka. "New LHC bound on low-mass diphoton resonances" (2017). DOI: 10.1016/j.physletb.2018.06.039. arXiv: 1710.01743 [hep-ph].

[23] W. Tangarife, K. Tobioka, L. Ubaldi, and T. Volansky. "Dynamics of Relaxed Inflation". *JHEP* 02 (2018), p. 084. DOI: 10.1007/JHEP02(2018)084. arXiv: 1706.03072 [hep-ph].

[24] W. Tangarife, K. Tobioka, L. Ubaldi, and T. Volansky. "Relaxed Inflation" (2017). arXiv: 1706.00438 [hep-ph].

[25] K. Blum, M. Honda, R. Sato, M. Takimoto, and K. Tobioka. "O(N) Invariance of the Multi-Field Bounce". *JHEP* 05 (2017). [Erratum: JHEP06,060(2017)], p. 109. DOI: 10.1007/JHEP05(2017)109,10.1007/JHEP06(2017)060. arXiv: 1611.04570 [hep-th].

[26] I. M. Bloch, R. Essig, K. Tobioka, T. Volansky, and T.-T. Yu. "Searching for Dark Absorption with Direct Detection Experiments". *JHEP* 06 (2017), p. 087. DOI: 10.1007/JHEP06(2017)087. arXiv: 1608.02123 [hep-ph].

[27] R. Sato and K. Tobioka. "LHC Future Prospects of the 750 GeV Resonance". *Phys. Lett.* B760 (2016), pp. 590–593. DOI: 10.1016/j.physletb.2016.07.051. arXiv: 1605.05366 [hep-ph].

[28] Y. Nakai, R. Sato, and K. Tobioka. "Footprints of New Strong Dynamics via Anomaly and the 750 GeV Diphoton". *Phys. Rev. Lett.* 116.15 (2016), p. 151802. DOI: 10.1103/PhysRevLett.116.151802. arXiv: 1512.04924 [hep-ph]. Featured in *APS Synopsis*, *Nature News*, *Physics World*, and *Phys.org*.

[29] K. Tobioka, R. Kitano, and H. Murayama. "Enhanced Higgs Mass in Compact Supersymmetry". *JHEP* 04 (2016), p. 025. DOI: 10.1007/JHEP04(2016)025. arXiv: 1511.04081 [hep-ph].

[30] G. Perez, Y. Soreq, E. Stamou, and K. Tobioka. "Prospects for measuring the Higgs boson coupling to light quarks". *Phys. Rev.* D93.1 (2016), p. 013001. DOI: 10.1103/PhysRevD.93.013001. arXiv: 1505.06689 [hep-ph].

[31] K. Tobioka. "A Natural Higgs Mass in Supersymmetry from Non-Decoupling Effects". *PoS* CORFU2014 (2015), p. 067.

[32] G. Perez, Y. Soreq, E. Stamou, and K. Tobioka. "Constraining the charm Yukawa and Higgs-quark coupling universality". *Phys. Rev.* D92.3 (2015), p. 033016. DOI: 10.1103/PhysRevD.92.033016. arXiv: 1503.00290 [hep-ph].

[33] T. Abe, J. Hisano, T. Kitahara, and K. Tobioka. "Gauge invariant Barr-Zee type contributions to fermionic EDMs in the two-Higgs doublet models". *JHEP* 01 (2014). [Erratum: JHEP04,161(2016)], p. 106. DOI: 10.1007/JHEP01(2014)106,10.1007/JHEP04(2016)161. arXiv: 1311.4704 [hep-ph].

[34] X. Lu, H. Murayama, J. T. Ruderman, and K. Tobioka. "A Natural Higgs Mass in Supersymmetry from NonDecoupling Effects". *Phys. Rev. Lett.* 112 (2014), p. 191803. DOI: 10.1103/PhysRevLett.112.191803. arXiv: 1308.0792 [hep-ph]. Selected as **PRL Editors' Suggestion**.

[35] R. Sato, S. Shirai, and K. Tobioka. "Flavor of Gluino Decay in High-Scale Supersymmetry". *JHEP* 10 (2013), p. 157. DOI: 10.1007/JHEP10(2013)157. arXiv: 1307.7144 [hep-ph].

[36] R. Sato, K. Tobioka, and N. Yokozaki. "Enhanced Diphoton Signal of the Higgs Boson and the Muon g-2 in Gauge Mediation Models". *Phys. Lett.* B716 (2012), pp. 441–445. DOI: 10.1016/j.physletb.2012.09.005. arXiv: 1208.2630 [hep-ph].

[37] R. Sato, S. Shirai, and K. Tobioka. "Gluino Decay as a Probe of High Scale Supersymmetry Breaking". *JHEP* 11 (2012), p. 041. DOI: 10.1007/JHEP11(2012)041. arXiv: 1207.3608 [hep-ph].

[38] H. Murayama, Y. Nomura, S. Shirai, and K. Tobioka. "Compact Supersymmetry". *Phys. Rev.* D86 (2012), p. 115014. DOI: 10.1103/PhysRevD.86.115014. arXiv: 1206.4993 [hep-ph].

[39] K. Harigaya, S. Matsumoto, M. M. Nojiri, and K. Tobioka. "Search for the Top Partner at the LHC using Multi-b-Jet Channels". *Phys. Rev.* D86 (2012), p. 015005. DOI: 10.1103/PhysRevD.86.015005. arXiv: 1204.2317 [hep-ph].

[40] K. Harigaya, S. Matsumoto, M. M. Nojiri, and K. Tobioka. "Testing Little Higgs Mechanism at Future Colliders". *JHEP* 01 (2012), p. 135. DOI: 10.1007/JHEP01(2012)135. arXiv: 1109.4847 [hep-ph].

[41] H. Murayama, M. M. Nojiri, and K. Tobioka. "Improved discovery of a nearly degenerate model: MUED using MT2 at the LHC". *Phys. Rev.* D84 (2011), p. 094015. DOI: 10.1103/PhysRevD.84.094015. arXiv: 1107.3369 [hep-ph].

Also on INSPIRE

Colloquium

2 *"Exploring New Light Particles ?at Multiple Frontiers"*, Enrico Fermi Institute, University of Chicago, Oct. 23, 2023

1 *"Probing Fundamental Scales with New Light Particles"*, Florida State University, March 23, 2023

Conference and workshop talks

39 *"More Realistic Test on Higgs Effective Field Theory"* (plenary), Higgs as a Probe of New Physics 2023, Osaka University, Osaka, Japan, June 6, 2023.

38 *"Cabibbo anomaly highlights sterile neutrinos"* (parallel, invited), 89th Annual Meeting of the APS Southeastern Section, University of Mississippi, Nov 2, 2022.

37 *"Light new particles at the kaon experiments"* (plenary), KAON2022, University of Osaka, Sept 16, 2022.

36 *"Hidden sectors in kaon decays"* (parallel, invited), Snowmass RPF Spring Meeting, University of Cincinnati, Mar 17, 2022.

35 *"Heavy QCD Axion in $b \to s$ transition"* (plenary), 7th KEK-PH Workshop on "Flavor", KEK (remote), Mar 23, 2021.

34 *"Exotica Theory at LHCb"* (plenary), Implications of LHCb measurements and future prospects, CERN (remote), October 2020.

33 *"Probing the Dark Sector at Kaon Factories"* (plenary), Snowmass RF town-hall meeting [RF6 topical group] (remote), October 2020.

32 *"KOTO vs NA62"* (plenary), Anomalies 2020, IIT Hyderabad, India (remote), September 2020.

31 *"Searching for New Physics via Kaon"* (plenary), Progress of Particle Physics, Yukawa Institute of Theoretical Physics, Japan (remote), September 2020

30 *"Theory Perspective on KOTO"* (plenary), "Physics Beyond Colliders meets theory" workshop, CERN (remote), June 2020.

29 *"BSM Overview"* (lecture, plenary), Lake Louise Winter Institute 2020, Lake Louise, Canada, February 2020.

28 *"Axion-like-particles at ATLAS/CMS, LHCb, and Kaon factory"* (plenary), "New Physics with Exotic and Long-Lived Particles" A Joint ICISE-CBPF Workshop, ICISE Conference Center, Quy Nhon, Vietnam, July 2019.

26,27 *"Axion-like particles at LHC and Kaon factories"* (plenary), "Explorations Beyond the Standard Model" workshop, University of Oregon, Eugene, USA, May 2018; Seventh Workshop on Theory, Phenomenology and Experiments in Flavour Physics and the future of BSM physics (University of Napoli Federico II), Villa Orlandi, Anacapri, Italy, June 2018

25 *"Axion-like particles at Kaon factories"* (plenary), KITP program "High Energy Physics at the Sensitivity Frontier", Kavli Institute for Theoretical Physics, Santa Barbara, USA, May 2018

24 *"New LHC bound on low-mass diphoton resonances"*, Brookhaven Forum 2017, Brookhaven National Laboratory, Brookhaven, USA, October 2017

23 *"Light Yukawa couplings"* (plenary), KAON2016, University of Birmingham, Birmingham, UK, September 2016

22 *"Footprints of Strong Dynamics"* (plenary), The 3rd NPKI Workshop "The lesson from the first results of Run 2 of the LHC," Korea University, Seoul, Korea, June 2016

21 *"Measuring Higgs coupling to charm quark"* (plenary), Interplay between LHC and Flavor Physics, Nagoya, Japan, March 2016

20 *"Footprints of New Strong Dynamics via Anomaly"* (plenary), Beyond the Standard Model 2016 in Okinawa, OIST, Okinawa, Japan, March 2016

19 *"High energy flavour physics"*, The Third Annual Large Hadron Collider Physics Conference (LHCP2015), St. Petersburg, Russia, September 2015

18 *"Higgs Mass and Compressed Spectrum via Scherk-Schwarz Mechanism"*, LHCP2015, St. Petersburg, Russia, September 2015

17 *"Higgs Mass with Scherk-Schwarz Mechanism"* (plenary), Joint KEK Theory Fermilab Theory Workshop, Fermilab, Batabia, USA, August 2015

16 *"Constraining the Charm Yukawa and Higgs–quark Universality"*, MG5_aMC@NLO Femto workshop, Kavli IPMU, Kashiwa, Japan, March 2015

15 *"Simple study of Higgs-charm coupling by LHC signal strength with b-tagging"*, The 70th annual meeting of JPS (The Physical Society of Japan), Waseda University, Tokyo, Japan, March 2015

14 *"Probing Charm Yukawa at the LHC"*, Quantum Universe Icore meeting, Tel Aviv University, Tel Aviv, Israel, March 2015

13 *"Higgs Mass in the MSSM and Beyond"* (plenary), ILC Summer Workshop, Sekikane, Japan, July 2014

12 *"Dirac NMSSM"* (plenary), Santa Fe 2014 Summer Workshop "LHC After the Higgs", Santa Fe, USA, July 2014

11 *"A Natural Higgs Mass in Supersymmetry from Non-Decoupling Effects"* (plenary), KEK-PH 2013, KEK, Tsukuba, Japan, September 2013

10 *"A Natural Higgs Mass in Supersymmetry from Non-Decoupling Effects"* (plenary), Corfu Summer Institute 2013, Corfu, Greece, September 2013

9 *"Compact Supersymmetry++"*, Supersymmetry 2013, International Centre for Theoretical Physics, Trieste, Italy, August 2013

8 *"Scenario of Compressed BSM"*, LHC vs Beyond the Standard Model, Kyoto University, Kyoto, Japan, March 2013

7 *"Compact Supersymmetry and 125 GeV Higgs"*, Supersymmetry 2012, Peking University, Beijing, China, July 2012

6 *"Compact Supersymmetry"*, Progress of Particle Physics 2012, Kyoto University, Kyoto, Japan, July 2012

5 *"Search for the Degenerate Supersymmetry at the LHC"*, The 67th annual meeting of JPS, Kanseigakuin University, Nishinomiya, Japan, March 2012

4 *"Improved discovery of nearly degenerate model: MUED using MT2 at the LHC"*, The autumn meeting of JPS, Hirosaki University, Hirosaki, Japan, September 2011

3 *"Improved discovery of nearly degenerate model: MUED using MT2 at the LHC"*, 2011 IPMU-YITP Workshop on Monte Carlo Tools for LHC, Kyoto University, Kyoto, Japan, September 2011

2 *"Discovery of minimal UED at the LHC"*, The 66th annual meeting of JPS, Niigata University, Niigata, Japan, March 2011

1 *"Discovery of minimal UED at the LHC"*, Extra Dimension 2011, Osaka University, Osaka, Japan, January 2011

Invited seminar talks

56-58 *"MeV Sterile Neutrinos in light of the Cabibbo-Angle Anomaly"*, Israel joint seminar at Technion, Haifa [December 28, 2022], Nuclear Physics Seminar, Florida State University [January 26, 2023], Perimeter Institute for Theoretical Physics, Ontario, Canada [April 25, 2023].

55 *"Exploring New Light Particles at the KOTO detector"*, KOTO collaboration meeting (remote) [May 12, 2022].

51-53 *"Heavy QCD Axion at Flavor Factories*, Kanazawa University, Kanazawa [July 16, 2021], KEK, Tsukuba [July 26, 2021], Tohoku University, Sendai [August 19, 2021].

50 *"Heavy QCD Axion in $b \to s$ transition"*, Belle II collaboration meeting (remote) [February 25, 2021].

49 *"KOTO vs NA62 after ICHEP2020"*, HEP/Astro Results Forum (remote) [September 14, 2020].

47, 48 *"KOTO vs NA62 –Dark Sector with Grossman-Nir bound and Beyond"*, Israel Joint Seminar (remote) [July 8, 2020], Los Alamos National Laboratory (remote) [July 14, 2020],

46 *"New physics implications of recent search for $K_L \to \pi^0 \nu\bar{\nu}$ at KOTO"*, Nuclear Seminar, Florida State University (remote) [April 17, 2020],

41-45 *"New Probes for BSM physics at Kaon Factories"*, Joint seminar by institutes in Israel, Tel Aviv [Mar 20, 2019], Pennsylvania State University, State College [Apr 17, 2019], KEK, Tsukuba [May 17, 2019], Institute for Basic Science, Daejeon [May 29, 2019], Kanazawa University, Kanazawa [July 11, 2019].

40 *"Axion-like-particle as diphoton resonance at LHC, B factory, and Kaon factory"*, University of Florida, Gainesville [Oct 23, 2018].

39 *"Axion-like-particle at LHC and Kaon Factory"*, HEP experiment group seminar, Osaka University, Osaka [July 31, 2018].

37, 38 *"Hunt for low mass diphoton resonance at LHC and Kaon factory"*, APEC seminar, Kavli IPMU, Kashiwa [July 11, 2018], HEP theory group seminar, University of Tokyo, Tokyo [August 3, 2018].

33 *"New LHC bound on low-mass diphoton resonances"*, LHCb Special Higgs and Exotica meeting [March 11, 2018].

32 *"The Higgs Boson as an Essential Probe for New Physics"*, Special Physics Seminar, Florida State University, Tallahassee [February 16, 2018].

30,31, 34-36 *"Hunt for low mass diphoton resonance at LHC and beyond"*, Princeton University, Princeton [January 19, 2018], Stony Brook University (HEP-EX), Stony Brook [January 28, 2018], Boston University, Boston [April 6, 2018], Massachusetts Institute of Technology, Cambridge [April 9, 2018], University of Massachusetts, Amherst [April 13, 2018].

28,29 *"Relaxed Inflation"*, Institute of High Energy Physics (IFAE), Barcelona [Jane 2, 2017], Ecole polytechnique federale de Lausanne (EPFL), Lausanne [May 29, 2017], and Yale University, New Haven [December 5, 2017].

27 *"Searching for Dark Absorption with Direct Detection Experiments"*, University of Tokyo, Tokyo [January 27, 2017] .

24-26 *"Particle Production for Inflation and Relaxion"*, University of California, Berkeley [October 24, 2016], University of California, Davis [October 17, 2016], and Princeton University, Princeton [October 10, 2016] .

23 *"Light Yukawa Couplings"*, SLAC National Accelerator Laboratory, Menlo Park [October 21, 2016].

21,22 *"Cascade Slow Roll"*, CERN, Geneva [July 7, 2016], and Johannes Gutenberg University of Mainz, Mainz [July 4, 2016]

20 *"Footprints of New Strong Dynamics via Anomaly and the 750GeV Diphoton"*, University of Bonn, Bonn [June 27, 2016].

19 *"First measurements of Higgs-charm coupling at LHC"*, Tohoku University, Sendai [March 17, 2016].

18 *"The Higgs Mass in Compact Supersymmetry"*, Joint Meeting of Technion, Tel Aviv U and Weizmann, Rehovot [November 26, 2015].

17 *"Probing Charm-Yukawa at LHC, status and prospects"*, Brookhaven National Laboratory, Brookhaven [July 29, 2015].

13-16 *"Probing Higgs-charm coupling, current and future LHC"*, Osaka University, Osaka [April 14, 2015], Toyama University, Toyama [April 13, 2015], Kyushu University, Fukuoka [April 10, 2015], and Joint Meeting of Technion, Tel Aviv U and Weizmann, Tel Aviv [February 11, 2015].

12 *"A Natural Higgs Mass in Supersymmetry from Non-Decoupling Effects"*, Tel Aviv University, Tel Aviv [December 11, 2014].

11 *"Dirac NMSSM: Natural Higgs mass driven by hard SUSY breaking"*, Kyushu University, Fukuoka [June 7, 2014].

10 *"A model for Compressed SUSY"*, Weizmann Institute of Science, Rehovot [February 12, 2014].

9 *"Naturalness driven by hard supersymmetry breaking"*, KEK, Tsukuba [October 15, 2013].

8 *"Compact Supersymmetry"*, Massachusetts Institute of Technology, Cambridge [March 4, 2013].

5-7 *"Degenerate BSM at the LHC"*, Lawrence Berkeley National Laboratory(LBNL), Berkeley [February 22, 2012], Nagoya University, Nagoya [November 9, 2011], and Osaka University, Osaka [October 25, 2011].

4 *"Possible degenerate new physics models, but how to find?"*, Saitama University, Saitama [October 14, 2011].

3 *"Search for degenerate new physics models by the MT2 cut"*, Seoul National University, Seoul [September 21, 2011].

1,2 *"Improved discovery of nearly degenerate model: MUED using MT2 at the LHC"* Heidelberg University, Heidelberg [August 29, 2011] and CERN, Geneva [July 28, 2011].