

### RESEARCH INTERESTS

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Phenomenology of high-energy physics, astroparticle physics, and cosmology; their interplay with experiments.

- I am an expert in **SUSY phenomenology** and **collider physics** (incl. detector physics & analysis techniques).
- I am interested in a confined gauge group and its application for **quarkonia-like dark matter**.
- I have outstanding skill and knowledge in **numerical computing** and **statistics**.

### CAREER

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Oct. 2017 – Present	<b>Postdoctoral researcher</b> at Department of physics and astronomy “Galileo Galilei”, the University of Padova
Oct. 2014 – Sep. 2017	<b>Postdoctoral fellow</b> at Physics department, Technion—Israel Institute of Technology
Apr. 2013 – Sep. 2014	<b>JSPS postdoctoral fellow</b> at Kavli IPMU, the University of Tokyo (supported by Japan Society for the Promotion of Science)
Apr. 2010 – Mar. 2013	<b>JSPS doctoral-course fellow</b> at Graduate school of science, the University of Tokyo (supported by Japan Society for the Promotion of Science)

### EDUCATION

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Apr. 2010 – Mar. 2013	<b>Ph. D. in Science</b> Graduate school of science, the University of Tokyo (25 Mar. 2013) Dissertation: <i>Supersymmetry after the Higgs discovery and its LHC phenomenology</i> Supervisor: Prof. Koichi Hamaguchi [ <a href="https://arxiv.org/abs/1305.0790">arXiv:1305.0790</a> ]
Apr. 2008 – Mar. 2010	<b>M. Sc. in Physics</b> Graduate school of science, the University of Tokyo (24 Mar. 2010) Thesis: <i>Supersymmetry without R-Parity: Its Phenomenology</i> Supervisor: Prof. Koichi Hamaguchi
Apr. 2004 – Mar. 2008	<b>Sc. B. in Physics</b> School of science, the University of Tokyo

### GRANTS

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Oct. 2016 – Sep. 2017	The Lady Davis Fellowship [15.6k USD]
Apr. 2013 – Mar. 2016 Declined in Sep. 2014	Grant-in-Aid for JSPS Research Fellows (for PostDocs) [2.76MJPY in total]
Apr. 2010 – Mar. 2013	Grant-in-Aid for JSPS Research Fellows (for Ph. D. students) [2.10MJPY in total]

### WORKSHOP ORGANIZATION

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16–19 Jul. 2013 Kavli IPMU School on the Future of Collider Physics «Kavli IPMU, the University of Tokyo»

## PAPERS

A list of my publications is also available at: <https://inspirehep.net/search?p=exactauthor:S.Iwamoto.2>

- [1] M. Endo, K. Hamaguchi, and S. Iwamoto,  
*Lepton Flavor Violation and Cosmological Constraints on R-parity Violation*,  
*JCAP* **1002** (2010) 032 [[arXiv:0912.0585](#)].
- [2] S. Asai, Y. Azuma, M. Endo, K. Hamaguchi, and S. Iwamoto,  
*Stau Kinks at the LHC*,  
*JHEP* **1112** (2011) 041 [[arXiv:1103.1881](#)].
- [3] M. Endo, K. Hamaguchi, S. Iwamoto, and N. Yokozaki,  
*Higgs Mass and Muon Anomalous Magnetic Moment in Supersymmetric Models with Vector-Like Matters*,  
*Phys. Rev. D* **84** (2011) 075017 [[arXiv:1108.3071](#)].
- [4] M. Endo and S. Iwamoto,  
*LHC Dijet Signals in New Physics Models for Top Forward–Backward Asymmetry*, [arXiv:1110.0014](#).
- ★[5] M. Endo, K. Hamaguchi, S. Iwamoto, and N. Yokozaki,  
*Higgs mass, muon  $g-2$ , and LHC prospects in gauge mediation models with vector-like matters*,  
*Phys. Rev. D* **85** (2012) 095012 [[arXiv:1112.5653](#)].
- [6] M. Endo, K. Hamaguchi, K. Nakayama, S. Iwamoto, and N. Yokozaki,  
*Higgs mass and muon anomalous magnetic moment in the  $U(1)$  extended MSSM*,  
*Phys. Rev. D* **85** (2012) 095006 [[arXiv:1112.6412](#)].
- [7] M. Endo, K. Hamaguchi, S. Iwamoto, and N. Yokozaki,  
*Vacuum Stability Bound on Extended GMSB Models*,  
*JHEP* **1206** (2012) 060 [[arXiv:1202.2751](#)].
- [8] M. Endo and S. Iwamoto,  
*Comment on the CMS search for charge-asymmetric production of  $W'$  boson in  $t\bar{b} + \text{jet}$  events*,  
*Phys. Lett. B* **718** (2013) 1070–1072 [[arXiv:1207.5900](#)].
- [9] M. Endo, K. Hamaguchi, K. Ishikawa, S. Iwamoto, and N. Yokozaki,  
*Gauge Mediation Models with Vectorlike Matters at the LHC*,  
*JHEP* **1301** (2013) 181 [[arXiv:1212.3935](#)].
- ★★[10] M. Endo, K. Hamaguchi, S. Iwamoto, and T. Yoshinaga,  
*Muon  $g-2$  vs LHC in Supersymmetric Models*,  
*JHEP* **1401** (2014) 123 [[arXiv:1303.4256](#)].
- [11] M. Ibe, S. Iwamoto, S. Matsumoto, T. Moroi, and N. Yokozaki,  
*Recent Result of the AMS-02 Experiment and Decaying Gravitino Dark Matter in Gauge Mediation*,  
*JHEP* **1308** (2013) 029 [[arXiv:1304.1483](#)].
- [12] M. Endo, K. Hamaguchi, S. Iwamoto, T. Kitahara, and T. Moroi,  
*Reconstructing Supersymmetric Contribution to Muon Anomalous Magnetic Dipole Moment at ILC*,  
*Phys. Lett. B* **728** (2014) 274–281 [[arXiv:1310.4496](#)].
- [13] S. Iwamoto, T. T. Yanagida, and N. Yokozaki,  
*CP-safe Gravity Mediation and Muon  $g-2$* ,  
*PTEP* **2015** 073B01 [[arXiv:1407.4226](#)].
- ★★[14] J. L. Feng, S. Iwamoto, Y. Shadmi, and S. Tarem,  
*Long-lived sleptons at the LHC and a 100 TeV proton collider*,  
*JHEP* **1512** (2015) 166 [[arXiv:1505.02996](#)].

- [15] N. Ierushalmi, S. Iwamoto, G. Lee, V. Nepomnyashy, and Y. Shadmi,  
*LHC benchmarks from flavored gauge mediation*,  
*JHEP* **1607** (2016) 058 [[arXiv:1603.02637](#)].
- [16] S. Iwamoto, G. Lee, Y. Shadmi, and R. Ziegler,  
*Diphoton signals from colorless hidden quarkonia*,  
*Phys. Rev. D* **94** (2016) 015003 [[arXiv:1604.07776](#)].
- ★[17] M. Abdullah, J. L. Feng, S. Iwamoto, and B. Lillard,  
*Heavy bino dark matter and collider signals in the MSSM with vectorlike fourth-generation particles*,  
*Phys. Rev. D* **94** (2016) 095018 [[arXiv:1608.00283](#)].
- [18] S. Iwamoto, G. Lee, Y. Shadmi, and Y. Weiss,  
*Tagging new physics with charm*,  
*JHEP* **1709** (2017) 114 [[arXiv:1703.05748](#)].
- [19] M. Endo, K. Hamaguchi, S. Iwamoto, and K. Yanagi,  
*Probing minimal SUSY scenarios in the light of muon  $g-2$  and dark matter*,  
*JHEP* **1706** (2017) 031 [[arXiv:1704.05287](#)].
- ★★[20] M. Geller, S. Iwamoto, G. Lee, Y. Shadmi, and O. Telem,  
*Dark quarkonium formation in the early universe*,  
*JHEP* **1806** (2018) 135 [[arXiv:1802.07720](#)].

#### Dissertation

- [A1] S. Iwamoto,  
*Supersymmetry after the Higgs discovery and its LHC phenomenology*, [arXiv:1305.0790](#).

#### in proceedings

- [P1] S. Iwamoto,  
*Muon  $g-2$  anomaly and 125 GeV Higgs : Extra vector-like quark and LHC prospects*,  
*AIP Conf. Proc.* **1467** (2012) 57–61 [[arXiv:1206.0161](#)].
- [P2] S. Iwamoto,  
*LHC SUSY searches after the Higgs discovery: respecting the muon  $g-2$* ,  
*SLAC eConf C130213.1* (2013) 15–21 [[arXiv:1304.5171](#)].

#### in report

- [R1] T. Golling, M. Hance, P. Harris, M. L. Mangano, et al. (eds.),  
*Physics at a 100 TeV pp collider: beyond the Standard Model phenomena*,  
Chapter 3 of the “Physics at the FCC-hh” Report [[arXiv:1606.00947](#)].

## SPECIAL LECTURES

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|-----------------|--|
| 11–14 Oct. 2016 | special lecture: <i>Lecture course “Tools for BSM Physics”</i><br>Yonsei University, South Korea |
| 8–10 Feb. 2012  | informal lecture: <i>Automatic calculation of Feynman diagrams</i><br>Osaka University, Japan    |

## CONFERENCE CONTRIBUTIONS

## invited talks

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|-----------------|---|
| 25 Oct. 2017    | invited talk: <i>Charm-tagging for new physics at the LHC</i><br>“Workshop on Beyond Standard Model and the Early Universe” at Tohoku U., Japan |
| 18–19 Oct. 2016 | invited talk: <i>BSM at Colliders</i><br>“Search for New Physics through the Higgs Boson” at Gwangju, South Korea                               |

## general contributions

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|--------------|---|
| 28 Nov. 2018 | <i>MSSM4G scenario and Vectorlike lepton searches at the LHC</i><br>“DISCRETE 2018” at Wien, Austria  |
| 22 Aug. 2018 | <i>SUSY explanation of <math>g-2</math> anomaly, explored at the LHC</i><br>“Beyond Standard Model: Where do we go from here?” at GGI, Italy                |
| 4 May 2018   | <i>MSSM in light of the muon <math>g-2</math> anomaly and dark matter</i><br>“KAIST–KU–PNU Joint Workshop” at KAIST, South Korea                            |
| 27 Aug. 2017 | <i>Long-Lived Charged Particles at FCC-hh and FCC-he</i><br>“SI2017” at Fuji-Yoshida, Japan   |
| 18 Jan. 2017 | <i>LLCP at FCC-hh</i><br>“1st FCC Physics Workshop” at CERN, Switzerland  |
| 25 Dec. 2016 | <i>MSSM4G scenario</i><br>“Israel Physical Society 62nd annual meeting” at Tel Aviv University, Israel  |
| 24 Aug. 2016 | <i>Gauge mediation with flavor violation</i><br>“Effective Field Theories as Discovery Tools” at MITP, Germany  |
| 13 Dec. 2015 | <i>Long-lived sleptons at a 100 TeV pp collider (and at the 14 TeV LHC)</i><br>“Israel Physical Society 61st annual meeting” at Bar Ilan University, Israel |
| 24 Aug. 2015 | <i>Long-lived sleptons at a 100 TeV pp collider (and at the 14 TeV LHC)</i><br>“SUSY 2015” at Tahoe, CA, the United States                                  |
| 25 Aug. 2014 | <i>CP-safe gravity mediation and muon <math>g-2</math></i><br>“SI2014” at Fuji-Yoshida, Japan   |
| 30 Jul. 2014 | <i>CP-safe gravity mediation and muon <math>g-2</math></i><br>“Progress of Particle Physics 2014” at YITP, Japan  |

- 21 Jul. 2014 | *ILC measurement of SUSY muon  $g-2$*   
“ILC Summer Camp 2014” at Kurayoshi, Japan
- 13 Feb. 2014 | *ILC capability of measuring SUSY-contribution to  $(g-2)_\mu$*   
“BURI 2014” at University of Toyama, Japan
- 7 Dec. 2013 | *Light SUSY is motivated by muon  $g-2$  anomaly*  
“ATLAS-Japan workshop” at The University of Tokyo, Japan
- 20 Nov. 2013 | *AMS-02 results and decaying gravitino dark matter*  
“PASCOS 2013” at National Taiwan University, Taiwan
- 27 Aug. 2013 | *Muon  $g-2$  vs LHC in supersymmetric models*  
“SUSY 2013” at ICTP, Italy
- 13 Feb. 2013 | *LHC SUSY searches after the Higgs discovery: respecting the muon  $g-2$*   
“HPNP 2013” at University of Toyama, Japan
- 6 Aug. 2012 | *MSSM with Vector-like Quarks can explain 126 GeV Higgs*  
“YONUPA Summer School 2012” at Fuji-Yoshida, Japan
- 15 Mar. 2012 | *Muon  $g-2$  anomaly & 125 GeV Higgs : Extra vector-like quark & LHC prospects*  
“GUT2012” at YITP, Japan
- 9 Mar. 2012 |  *$g-2$  and 125 GeV Higgs*  
“Sapporo Winter School 2012” at Hokkaido University, Japan
- 27 Feb. 2012 | *Long-lived stau kink signature at the LHC*  
“KEK-PH 2012” at KEK, Japan
- 20 Feb. 2012 | *Higgs Mass and Muon  $g-2$  in Supersymmetric Models with Vector-Like Matters*  
“Winter Toyama 2012, phenomenology & cosmology workshop” at U. of Toyama, Japan
- 18 Feb. 2012 | *Muon  $g-2$  anomaly & 125 GeV Higgs : Extra vector-like quark & LHC prospects*  
“Physics opportunities with LHC at 7 TeV” at KEK, Japan
- 7–8 Sep. 2011 | poster: *In-flight-decay of Stau in the LHC Tracker*  
“IPMU–YITP School on Monte Carlo Tools for LHC” at YITP, Japan
- 20 Aug. 2011 | *Long-lived Stau might be Detected in the LHC*  
“YONUPA Summer School 2011” at Takashima, Japan
- 13 Aug. 2011 | poster: *Top Forward–Backward Asymmetry and Di-jet Cross Section in LHC*  
“SI2011 (phenomenology)” at Fuji-Yoshida, Japan
- 4 Oct. 2010 | *Cosmological Constraints on R-Parity violating SUSY*  
“2nd Bethe Center Workshop” at Bad Honnef, Germany
- 8 Aug. 2010 | *Phenomenology of R-Parity violating SUSY*  
“YONUPA Summer School 2010” at Kijimadaira, Japan
- 20 Feb. 2010 | *Cosmological Constraints on R-Parity violating SUSY under Lepton Flavor Violation*  
“KEK-PH 2010” at KEK, Japan

SEMINAR TALKS

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- 13 Dec. 2018 | *MSSM in light of the muon  $g-2$  anomaly and dark matter* at University of Warsaw, Poland
- 1 May 2018 | *Minimal SUSY scenarios in the light of muon  $g-2$  and dark matter* at KIAS, South Korea
- 30 Apr. 2018 | *Minimal SUSY scenarios in the light of muon  $g-2$  and dark matter* at Korea U., South Korea
- 31 Jan. 2018 | *Collider Pheno of MSSM4G* at Internal meeting of ATLAS SUSY WG (CERN), Switzerland
- 2 Nov. 2017 | *Long-lived charged particles at FCC-hh and FCC-he* at Tohoku University, Japan
- 18 Sep. 2017 | *Long-lived charged particles at future hh and he colliders* at National Taiwan U., Taiwan
- 3 May 2017 | *EXPM-PHENO cross talk: Possible use of c-tag in SUSY phenomenology*  
at Joint particle physics meeting (Weizmann Institute), Israel
- 10 Nov. 2016 | *MSSM4G scenario* at IPPP, Durham U., the United Kingdom
- 7 Nov. 2016 | *MSSM4G scenario* at DAMTP, U. Cambridge, the United Kingdom
- 20 Sep. 2016 | *MSSM4G scenario* at The University of Tokyo, Japan
- 15 Sep. 2016 | *MSSM4G scenario* at Osaka University, Japan
- 2 Sep. 2015 |  *$(g-2)_\mu$ -SUSY and the LHC* at University of California · Irvine, the United States
- 17 Dec. 2014 | *SUSY with light electroweakino* at Joint particle physics meeting (Tel Aviv U.), Israel
- 1 May 2013 | *SUSY (with explaining the muon  $g-2$ ) at the LHC* at Kavli IPMU, U. Tokyo, Japan
- 8 Feb. 2013 | *SUSY at the LHC in presence of 126 GeV Higgs* at Kyushu University, Japan
- 20 Apr. 2012 | *125 GeV, SUSY, tension between them* at University of Toyama, Japan
- 19 Apr. 2012 | *125 GeV, SUSY, tension between them* at Niigata University, Japan
- 30 Jan. 2012 | *Long-lived Stau signature in the LHC* at DESY, Germany
- 16 Jan. 2012 | *Long-lived Stau signature in the LHC* at University of Bonn, Germany