

WANG, ZEREN SIMON

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| PERSONAL INFO | Nationality: Hong Kong | Date of Birth: Dec. 23, 1991 |
| CONTACT | Department of Physics, No. 101, Section 2 Kuang Fu Road, Hsinchu 300, Taiwan | Email: wzs@mx.nthu.edu.tw |
| RESEARCH INTERESTS | Physics beyond the Standard Model Collider phenomenology | |
| PROFESSIONAL EXPERIENCE | National Tsing Hua University , Hsinchu, Taiwan Postdoctoral researcher in the group of Prof. Kingman CHEUNG APCTP , Pohang, South Korea Postdoctoral researcher in the Young Scientist Training (YST) program | Nov. 2020 – present Aug. 2019 – Oct. 2020 |
| EDUCATION | Ph.D. in Physics Bethe Center for Theoretical Physics (BCTP) & Physics Institute (PI) of the University of Bonn Supervisor: Prof. Herbert K. DREINER Ph.D. thesis: Confronting R-parity-violating MSSM with Flavor Observables and Displaced Vertices M.Sc. in Physics Helmholtz-Institut für Strahlen- und Kernphysik (HISKP) of the University of Bonn Supervisor: Prof. Bastian KUBIS cGPA: 1.3 (on a scale from 1.0 ‘best’ to 5.0 ‘worst’) Master thesis: Isospin breaking in the two-loop pion vector form factor B.Sc. in Physics with a minor in Mathematics The University of Hong Kong Supervisor: Prof. Wang YAO cGPA: 3.51/4.00. Major GPA: 3.76/4.00 IELTS: 8, SAT: 2200 Final Year Project: Collective emission phenomena of quantum emitters | Oct. 2016 – June 2019 Oct. 2013 – Aug. 2015 Sept. 2010 – July 2013 |
| HONORS AND AWARDS | Dean’s Honours List, the Faculty of Science, the University of Hong Kong, Hong Kong, 2012-13 Professor C D Beling Memorial Prize in Physics, the Faculty of Science, the University of Hong Kong, Hong Kong, 2012-13 | |
| PUBLICATIONS | Long-lived Sterile Neutrinos at Belle II in Effective Field Theory G. Zhou, J. Y. Günther, Z. S. Wang , J. de Vries, H. K. Dreiner arXiv: 2111.04403 Long-lived heavy neutral leptons at the LHC: four-fermion single-N_R operators R. Beltrán, G. Cottin, J. C. Helo, M. Hirsch, A. Titov, Z. S. Wang arXiv: 2110.15096 Probing charged lepton flavor violation with axion-like particles at Belle II K. Cheung, A. Soffer, Z. S. Wang , Y. Wu arXiv: 2108.11094 Time-delayed electrons from neutral currents at the LHC K. Cheung, K. Wang, Z. S. Wang JHEP 09 (2021) 026 (arXiv: 2107.03203) Heavy neutral leptons in effective field theory and the high-luminosity LHC G. Cottin, J. C. Helo, M. Hirsch, A. Titov, Z. S. Wang JHEP 09 (2021) 039 (arXiv: 2105.13851) Constraining electroweak and strongly charged long-lived particles with CheckMATE N. Desai, F. Domingo, J. S. Kim, R. Ruiz de Austri Bazan, K. Rolbiecki, M. Sonawane, Z. S. Wang Eur. Phys. J. C 81 (2021) 11, 968 (arXiv: 2104.04542) Physics potential of a muon-proton collider K. Cheung, Z. S. Wang Phys. Rev. D 103, 116009 (arXiv: 2101.10476) | |

Long-lived light neutralinos at Belle II

S. Dey, C. O. Dib, J. C. Helo, M. Nayak, N. A. Neil, A. Soffer, **Z. S. Wang**
 JHEP 02 (2021) 211 (arXiv: 2012.00438)

Long-lived Sterile Neutrinos at the LHC in Effective Field Theory

J. de Vries, H. K. Dreiner, J. Y. Günther, **Z. S. Wang**, G. Zhou
 JHEP 03 (2021) 148 (arXiv: 2010.07305)

Exotic Higgs decays into displaced jets at the LHeC

K. Cheung, O. Fischer, **Z. S. Wang**, J. Zurita
 JHEP 02 (2021) 161 (arXiv: 2008.09614)

R-parity Violation and Light Neutralinos at ANUBIS and MAPP

H. K. Dreiner, J. Y. Günther, **Z. S. Wang**
 Phys. Rev. D 103, 075013 (arXiv: 2008.07539)

Heavy neutral leptons at ANUBIS

M. Hirsch, **Z. S. Wang**
 Phys. Rev. D 101, 055034 (arXiv: 2001.04750)

Probing long-lived particles at Higgs factories

K. Cheung, **Z. S. Wang**
 Phys. Rev. D 101, 035003 (arXiv: 1911.08721)

Physics with far detectors at future lepton colliders

Z. S. Wang, K. Wang
 Phys. Rev. D 101, 075046 (arXiv: 1911.06576)

Searching for dark photons at the LHeC and FCC-he

M. D’Onofrio, O. Fischer, **Z. S. Wang**
 Phys. Rev. D 101, 015020 (arXiv: 1909.02312)

Long-lived light neutralinos at future Z -factories

Z. S. Wang, K. Wang
 Phys. Rev. D 101, 115018 (arXiv: 1904.10661)

Long-lived fermions at AL3X

D. Dercks, H. K. Dreiner, M. Hirsch, **Z. S. Wang**
 Phys. Rev. D 99, 055020 (arXiv: 1811.01995)

Updating bounds on R -parity violating supersymmetry from meson oscillation data

F. Domingo, H. K. Dreiner, J. S. Kim, M. E. Krauss, V. Martín-Lozano, **Z. S. Wang**
 JHEP 02 (2019) 066 (arXiv: 1810.08228)

R-parity violation and light neutralinos at CODEX-b, FASER and MATHUSLA

D. Dercks, J. de Vries, H. K. Dreiner, **Z. S. Wang**
 Phys. Rev. D 99, 055039 (arXiv: 1810.03617)

Heavy neutral fermions at the high-luminosity LHC

J. C. Helo, M. Hirsch, **Z. S. Wang**
 JHEP 07 (2018) 056 (arXiv: 1803.02212)

WHITE PAPERS

The Large Hadron-Electron Collider at the HL-LHC
 arXiv: 2007.14491

WORKSHOP
ORGANIZATION

The Future is DARK (June 2021), Hsinchu, Taiwan

REFeree SERVICE

Physical Review D

TEACHING

National Tsing Hua University, Hsinchu, Taiwan
 Assisted a student, Yu-Heng Wu, for arXiv: 2108.11094

The University of Bonn, Bonn, Germany

Assisted a student, J. Y. Günther, for Phys. Rev. D 103, 075013

Tutor for *Quantum Field Theory*

Tutor for *Quantum Field Theory*

Tutor for *Advanced Quantum Theory*

Apr. 2018 – July 2018

Apr. 2017 – July 2017

Oct. 2016 – Feb. 2017

INVITED
SEMINARS

Simon Says: Long Live the Particle! phenomenological studies on LLP searches at the LHC
 University of Pittsburgh, Pittsburgh, Pennsylvania, USA (online) Nov. 24, 2021

Recasting and proposing searches for long-lived particles at the LHC

| | |
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| National Taiwan University, Taipei, Taiwan | Nov. 1, 2021 |
| Simon Says: Long Live the Particle! phenomenological studies on LLP searches at the LHC | |
| National Dong Hwa University, Hualien, Taiwan | Oct. 27, 2021 |
| Simon Says: Long Live the Particle! phenomenological studies on LLP searches at the LHC | |
| National Taiwan Normal University, Taipei, Taiwan | Oct. 19, 2021 |
| Long-lived Sterile Neutrinos at the LHC in Effective Field Theory | |
| National Tsing Hua University, Hsinchu, Taiwan (Online) | June 3, 2021 |
| Long-lived Sterile Neutrinos at the LHC in Effective Field Theory | |
| Academia Sinica, Taipei, Taiwan (Online) | May 14, 2021 |
| Long-lived Sterile Neutrinos at the LHC in Effective Field Theory | |
| National Taiwan University, Taipei, Taiwan | Dec. 14, 2020 |
| Long-lived particle searches at the LHC and Higgs factories | |
| Pusan National University, Busan, South Korea | Feb. 18, 2020 |
| Long-lived particle searches at the LHC and Higgs factories | |
| KIAS, Seoul, South Korea | Jan. 3, 2020 |
| Long-lived particle searches with far detectors at the LHC | |
| National Tsing Hua University, Hsinchu, Taiwan | Nov. 14, 2019 |
| New results of R-parity-violating MSSM contributions to neutral mesons' mixing | |
| NITheP, Wits University, Johannesburg, South Africa | Aug. 7, 2018 |
| INVITED TALKS | Probing charged lepton flavor violation with axion-like particles at Belle II |
| | Workshop: Tenth workshop of the LHC LLP Community CERN, Geneva, Switzerland (online) Nov. 10, 2021 |
| | Searching for long-lived light neutralinos at future lepton colliders |
| | Workshop: SUSY 2021 ITP, Beijing, China (Online) Aug. 24, 2021 |
| | Long-lived light neutralinos at Belle II |
| | Workshop: Ninth workshop of the LHC LLP Community CERN, Switzerland (Online) May 26, 2021 |
| | Update on CheckMATE: recasting LHC searches for long-lived particles |
| | Workshop: (Re)interpreting the results of new physics searches at the LHC CERN, Geneva, Switzerland (Online) Feb. 16, 2021 |
| | Exotic Higgs decays into displaced jets at the LHeC |
| | Workshop: Eighth workshop of the LHC LLP Community CERN, Geneva, Switzerland (Online) Nov. 19, 2020 |
| | Probing long-lived particles at Higgs factories |
| | Workshop: KEK-PH Lectures and Workshops KEK, Tsukuba, Japan (Online) Aug. 5, 2020 |
| | Heavy neutral leptons at ANUBIS |
| | Workshop: Seventh workshop of the LHC LLP Community CERN, Geneva, Switzerland (Online) May 26, 2020 |
| | Searching for Dark Photons at the LHeC and FCC-he |
| | Workshop: IBS-PNU Joint Workshop on Physics beyond the Standard Model Busan, South Korea Dec. 4, 2019 |
| | Long-lived particle searches with far detectors at the LHC |
| | Workshop: Mini workshop on new physics beyond the standard model APCTP, Pohang, South Korea Dec. 3, 2019 |
| | Heavy neutral fermions at the high-luminosity LHC |
| | Pheno Journal Club talk Wits University, Johannesburg, South Africa Aug. 24, 2018 |
| | New results of R-parity-violating MSSM contributions to neutral mesons' mixing |

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| | AHEP Journal Club talk Instituto de Física Corpuscular, University of Valencia, Valencia, Spain | Oct. 3, 2017 |
| CONTRIBUTED TALKS | Recasting long-lived particle searches at the LHC with CheckMATE 2 Workshop: Computational Tools for High Energy Physics and Cosmology IP2I, Lyon, France (Online) | Nov. 25, 2021 |
| | Time-delayed electrons from neutral currents at the LHC Workshop: Tenth Workshop of the LHC LLP Community CERN, Geneva, Switzerland (Online) | Nov. 12, 2021 |
| | Recasting long-lived particle searches at the LHC with CheckMATE 2 Workshop: Tenth Workshop of the LHC LLP Community CERN, Geneva, Switzerland (Online) | Nov. 11, 2021 |
| | Physics with far detectors at future lepton colliders Workshop: ILC Workshop on Potential Experiments (ILCX2021) IDT, KEK and JAHEP ILC Steering Panel, Japan (Online) | Oct. 28, 2021 |
| | Time-delayed electrons from neutral currents at the LHC Workshop: Asia-Pacific Workshop on Particle Physics and Cosmology 2021 Yonsei University, Seoul, South Korea (Online) | Aug. 5, 2021 |
| | Long-lived light neutralinos at Belle II Workshop: FSP Workshop: Long-lived particles at Belle II DESY, Hamburg, Germany (Online) | Dec. 10, 2020 |
| | Searching for Dark Photons at the LHeC and FCC-he Conference: NCTS Annual Theory Meeting 2019: Particles, Cosmology and Strings National Center for Theoretical Sciences, Hsinchu, Taiwan | Dec. 13, 2019 |
| | Searching for Dark Photons at the LHeC and FCC-he Workshop: Sixth Workshop of the LHC LLP Community University of Ghent, Ghent, Belgium | Nov. 27, 2019 |
| | R-parity violation and light neutralinos at CODEX-b, FASER and MATHUSLA Workshop: Fourth Workshop of the LHC LLP Community Nikhef, Amsterdam, the Netherlands | Oct. 24, 2018 |
| | Heavy neutral fermions at the high-luminosity LHC Workshop: Invisibles18 Karlsruhe Institute of Technology, Karlsruhe, Germany | Sept. 4, 2018 |
| | Heavy neutral fermions at the high-luminosity LHC Workshop: Workshop on the physics of HL-LHC, and perspectives at HE-LHC CERN, Geneva, Switzerland | June 20, 2018 |
| | Heavy neutral fermions at the high-luminosity LHC Conference: Planck 2018 University of Bonn, Bonn, Germany | May 22, 2018 |
| | Heavy neutral fermions at the high-luminosity LHC Workshop: ABHM research meeting University of Bonn, Bonn, Germany | Apr. 17, 2018 |
| | New results of R-parity-violating MSSM contributions to neutral mesons' mixing Conference: PANIC 2017 Beijing, China | Sept. 2, 2017 |
| | New results of R-parity-violating MSSM contributions to neutral mesons' mixing Conference: CRC110 general meeting of 2017 Peking University, Beijing, China | Aug. 29, 2017 |
| RESEARCH STAYS | NCTS , National Tsing Hua University, Hsinchu, Taiwan Responsible investigator: Prof. Kingman Cheung <i>Probing Long-lived Particles at Higgs Factories</i> , published | Oct. 27, 2019 - Nov. 20, 2019 |
| | NITheP , Wits University, Johannesburg, South Africa | Aug. 2, 2018 – Aug. 29, 2018 |

Responsible investigator: Dr. Jong Soo Kim

Constraining electroweak and strongly charged long-lived particles with CheckMATE2, published

IFIC, University of Valencia, Valencia, Spain

Responsible investigator: Prof. Martin Hirsch

Sept. 28, 2017 – Nov. 30, 2017

Heavy neutral fermions at the high-luminosity LHC, published

COMPUTER
SKILLS

OS: Linux, Mac, Windows

Software: Mathematica, Matlab, MS Office (Word, PowerPoint, Excel), L^AT_EX

Programming: C++, Python, shell script

BSM & HEP tools: SARAH, SPheno, FeynArts, FeynCalc, FeynRules, Flavio, MadGraph5, Pythia8, Delphes3, MadAnalysis, CheckMATE2, ROOT

LANGUAGES

English (fluent), Mandarin (native), Wu Chinese (native), Cantonese (fluent), German (conversational/B2), Spanish (basic), Japanese (basic)

REFEREES

Referee: Prof. Herbert Dreiner

Affiliation: BCTP, Physics Institute, University of Bonn, Bonn, Germany

Email: dreiner@uni-bonn.de

Referee: Prof. Kingman Cheung

Affiliation: Department of Physics, National Tsing Hua University, Hsinchu, Taiwan

Email: cheung@phys.nthu.edu.tw

Referee: Prof. Martin Hirsch

Affiliation: Instituto de Física Corpuscular, University of Valencia, Valencia, Spain

Email: mahirsch@ific.uv.es

Referee: Prof. Jordy de Vries

Affiliation: University of Amsterdam, Amsterdam, Netherlands

Email: j.devries4@uva.nl