

Yongcheng Wu – CV

Address	Room 3364, Herzberg Laboratories, Department of Physics, Carleton University, Ottawa, Ontario, K1S 5B6, Canada	Mobile Phone	+86 151 2000 2806 +1 613 298 1839
Date of Birth	30 th August 1990	Email	ycwu@physics.carleton.ca
Nationality	China		

Education & Academic Experience

2017.09–Now	Postdoctoral Fellow, Adviser: Heather Logan Department of Physics, Carleton University Ottawa, Ontario, K1S 5B6, Canada
2012.09–2017.07	Ph.D. Thesis adviser: Tao Han and Qing Wang Department of Physics, Tsinghua University Beijing, China GPA 91.4/100
2015.09–2016.09	Visiting Scholar, Department of Physics & Astronomy, University of Pittsburgh Pittsburgh, USA
2013.11.04–2013.11.29	Visiting Student, Department of Physics, National Tsing Hua University Taiwan, China
2013.10.20–2013.10.25	Visiting Student, Institut de Physique Nucleaire de Lyon Lyon, France
2008.09–2012.07	Bachelor Degree, Department of Physics, Tsinghua University Beijing, China GPA 89.4/100

Publications

Papers

- Tao Han, Shufang Su, **Yongcheng Wu**, Bin Zhang and Huanian Zhang; Sbottom discovery via mixed decays at the LHC; Phys. Rev. D **92**, 11, 115009 (2015); [arXiv:1507.04006]
- Tao Han, Felix Kling, Shufang Su, **Yongcheng Wu**; Unblinding the Dark Matter Blind Spots; JHEP 1702(2017) 057; [arXiv:1612.02387];
- Tao Han, Satyanarayan Mukhopadhyay, Biswarup Mukhopadhyaya, **Yongcheng Wu**; Measuring the CP property of the Higgs coupling to tau leptons in the VBF channel at the LHC; JHEP 1705(2017) 128; [arXiv:1612.00413];
- Xin Chen, **Yongcheng Wu**; Search for CP-Violation effects in the $h \rightarrow \tau\tau$ decay with future e^+e^- colliders; Eur. Phys. J. C **77**, no. 10, 697 (2017); [arXiv:1703.04855];

- **Yongcheng Wu**, Teng Ma, Bin Zhang, Giacomo Cacciapaglia; Composite Dark Matter and Higgs; JHEP **1711**, 058 (2017); [arXiv:1703.06903];
- Xin Chen, **Yongcheng Wu**; Probing the CP-Violation effects in the $h\tau\tau$ coupling at the LHC; Phys. Lett. B **790**, 332, (2019) [arXiv:1708.02882];
- Ligong Bian, Ning Chen, Wei Su, **Yongcheng Wu**, Yu Zhang; Future prospects of mass-generate Higgs bosons in the CP-conserving two-Higgs-doublet model; Phys. Rev. D **97**, 11, 115007 (2018); [arXiv:1712.01299];
- Xin Chen, **Yongcheng Wu***; Search for the Electric Dipole Moment and anomalous magnetic moment of the tau lepton at tau factories; [arXiv:1803.00501] (Accepted by JHEP);
- Ning Chen, Tao Han, Shufang Su, Wei Su, **Yongcheng Wu**; Type-II 2HDM under the Precision Measurements at the Z-pole and a Higgs Factory; JHEP **1903**, 023 (2019); [arXiv:1808.02037];
- Heather E. Logan, **Yongcheng Wu**; Searching for the $W\gamma$ decay of a charged Higgs boson; JHEP **1811**, 121 (2018); [arXiv:1809.09127];
- Ning Chen, Chun Du, **Yongcheng Wu**, Xunjie Xu; Further study of the global minimum constraint to the two-Higgs-doublet models: LHC searches for heavy Higgs bosons; Phys. Rev. D **99**, 3, 035011 (2019) [arXiv:1810.04689];
- Giacomo Cacciapaglia, Shahram Vatani, Teng Ma, **Yongcheng Wu**; Towards a fundamental safe theory of composite Higgs and Dark Matter; [arXiv:1812.04005];
- Ruiyu Zhou, Wei Cheng, Xin Deng, Ligong Bian, **Yongcheng Wu**; Electroweak phase transition and Higgs phenomenology in the Georgi-Machacek model; JHEP **1901**, 216 (2019); [arXiv:1812.06217];
- Huayong Han, Li Huang, Teng Ma, Jing Shu, Tim M.P. Tait, **Yongcheng Wu**; Six Top Messages of New Physics at the LHC; [arXiv:1812.11286]; (Accepted by JHEP)
- Xin Chen, Yue Xu, **Yongcheng Wu**, Yu-Ping Kuang, Qing Wang, Hang Chen, Shih-Chieh Hsu, Zhen Hu; Search for a generic heavy Higgs at the LHC; [arXiv:1905.05421];
- Ligong Bian, Huai-Ke Guo, **Yongcheng Wu**, Ruiyu Zhou; Gravitational Wave and Collider Searches for the EWSB Patterns; [arXiv:1906.11664];
- Ligong Bian, **Yongcheng Wu**, Ke-Pan Xie; Electroweak phase transition with composite Higgs models: calculability, gravitational waves and collider searches; [arXiv:1909.02014];
- Wei Su, Martin White, Anthony G. Williams, **Yongcheng Wu**; Exploring the low $\tan\beta$ region of two Higgs doublet models at the LHC; [arXiv:1909.09035];
- Ning Chen, Tong Li, **Yongcheng Wu**, Ligong Bian; Discriminate the discrete symmetry through the future e^+e^- colliders and gravitational waves; [arXiv:1911.05579];
- Ning Chen, Tao Han, Shuailong Li, Shufang Su, Wei Su, **Yongcheng Wu**; Type-I 2HDM under the Higgs and Electroweak Precision Measurements; [arXiv:1912.01431];
- Xin Chen, Zhen Hu, **Yongcheng Wu**; Search for dark photon and dark matter signatures around electron-positron colliders; [arXiv:2001.04382];
- Catarina Cosme, Máira Dutra, Teng Ma, **Yongcheng Wu**, Litao Yang; Neutrino Portal to FIMP Dark Matter with an Early Matter Era; [arXiv:2003.01723];
- Ameen Ismail, Heather E. Logan, **Yongcheng Wu**; Updated constraints on the Georgi-Machacek model from LHC Run 2; [arXiv:2003.02272];
- Ameen Ismail, Ben Keeshan, Heather E. Logan, **Yongcheng Wu**; A benchmark for LHC searches for low-mass custodial fiveplet scalars in the Georgi-Machacek model; [arXiv:2003.05536];

Proceedings

- Ning Chen, Jiayin Gu, Tao Han, Honglei Li, Zhen Liu, Huayang Song, Shufang Su, Wei Su, **Yongcheng Wu**, Jin-Min Yang; New physics implication of Higgs precision measurements; [arXiv:1808.10177] (Contribution to the proceedings of the High Energy Physics Program at HKUST);
- Ning Chen, Tao Han, Shufang Su, Wei Su, **Yongcheng Wu**; Implication of Higgs Precision Measurement on New Physics; [arXiv:1901.09067] (Contributing to the LCWS2018, Arlington, Texas (C18-10-22));
- Giacomo Cacciapaglia, Teng Ma, **Yongcheng Wu**; Composite Models on a safe road to the Planck scale; J. Phys. Conf. Ser. 1271 (2019) 012014; [10.1088/1742-6596/1271/1/012014];

Talks Presented

- 2019.02** Light Scalars in Georgi-Machacek Model at the LHC
HPNP 2019, Osaka University, Osaka, Japan
- 2018.11** Composite Higgs and Dark Matter
Theoretical Seminar, Department of Physics, Carleton University, Ottawa, ON, Canada
- 2018.11** Composite Higgs and Dark Matter
Seminar, Department of Physics and Astrophysics, University of Pittsburgh, Pittsburgh, PA, USA
- 2018.10** Implication of Higgs Precision Measurement on New Physics
LCWS 2018, University of Texas, Arlington, Texas, USA
- 2018.09** $W\gamma$ Searches in the Georgi-Machacek Model
WG3 Fall Meeting: Recap of Recent Progress, Online
- 2018.07** Implications of the Higgs precision measurement on New Physics
Seminar, Physics Department, Tsinghua University, Beijing, China
- 2018.07** Implications of the Higgs precision measurement on New Physics
Seminar, Center for High Energy Physics, Peking University, Beijing, China
- 2018.05** Implications of the Higgs precision measurement on New Physics
Theoretical Seminar, Department of Physics, Carleton University, Ottawa, ON, Canada
- 2018.03** $H_5^+ \rightarrow W^\pm\gamma$ in Georgi-Machacek Model
Low-mass-GM meeting for Extended Scalars subgroup, Online
- 2017.10** Searching for CPV effects in $h \rightarrow \tau\tau$ at the LHC and future e^+e^- colliders
Theoretical Seminar, Department of Physics, Carleton University, Ottawa, ON, Canada
- 2015.11** To the bottom of sbottom
PITT PACC, University of Pittsburgh, Pittsburgh, PA, USA
- 2015.07** The phenomenology of sbottom at LHC
Summer Institute, University of Chinese Academy of Sciences, Beijing, China
- 2013.11** The phenomenology of sbottom at LHC
National Tsing Hua University, Taiwan, China

Conferences Attended

- 2019.02** The 4th International Workshop on “Higgs as a Probe of New Physics 2019” (HPNP 2019)
Osaka, Japan
- 2018.10** Linear Collider Workshop 2018 (LCWS 2018)
Arlington, TX, USA

- 2017.11** 2017 ICFA Seminar
Ottawa, ON, Canada
- 2016.08** Invisible Higgs at the LHC
University of Pittsburgh, Pittsburgh, PA, USA
- 2016.05** Phenomenology 2016
University of Pittsburgh, Pittsburgh, PA, USA
- 2016.05** SM@LHC
University of Pittsburgh, Pittsburgh, PA, USA
- 2015.12** Higgs and Beyond
University of Pittsburgh, Pittsburgh, PA, USA
- 2015.02** The 2nd IAS School on Particle Physics & Cosmology and Implications for Tecnology
Nanyang Technological University, Singapore
- 2014.08** International Summer School on TeV Experimental Physics
Institute of High Energy Physics, Beijing, China
- 2014.07** 21st CTEQ Summer School on QCD and Electroweak Phenomenology
Peking University, Beijing, China
- 2013.12** International Workshop on Future High Energy Circular Colliders
Institute of High Energy Physics, Beijing, China
- 2013,10** New Perspectives in Dark Matter
Istitut de Physique Nucleaire de Lyon, Lyon, France
- 2013.08** International Symposium on Higgs Physics
Institute of High Energy Physics, Beijing, China
- 2013.05** MadGraph School
University of Chinese Academy of Sciences, Beijing, China

Software Skills

- **Programming**

- C/C++
 - Data-analysis framework:
Github repository
 - Higgs Signal Strength and Oblique Observables Fitting:
github:ycwu1030/HiggsSignalStrength_STU
 - NLO improved 2HDMC:
github:ycwu1030/2HDMC-NLO
 - Loop induced decay in GM model in the Alignment limit:
github:ycwu1030/GMLoopDecay
 - Higgs Pair Production Calculation at the LHC in 2HDM:
github:ycwu1030/THDMHiggsPairProduction
- Fortran
 - Involving in the development of the GMCalc
 - Forked and modified version of GMCalc for own usage:
github:ycwu1030/GMCalc_EVO
- ROOT
- Python
 - Modification of CosmoTransitions to Calculate the Gravitational Wave related Variables:
github:ycwu1030/CosmoTransitions
- Shell Script
- Mathematica
 - Semi-Automatic generation of the FeynArts Model files including all EW NLO Counter Terms and Renormalization Constant for 2HDM model:
github:ycwu1030/THDMNLO_FA
- **Phenomenology Package**
 - *MadGraph/Pythia/Delphes*
 - *micrOMEGAs*
 - *FeynRules*
 - QCD@LO/NLO model files for Georgi-Machacek Model:
github:ycwu1030/GM_FeynRule
 - *FeynArts/FormCalc/LoopTools* (One-Loop Calculation for 2HDM)
 - *HEPfit*
 - *CosmoTransition*

Teaching Experiences

2012.09-2013.01	Fundamental Physics Principles and Experiments I, TA, Tsinghua University, Beijing, China
2013.02-2013.07	Feynman Lectures II (Electromagnetic Part), TA, Tsinghua University, Beijing, China
2013.09-2014.01	Fundamental Physics Principles and Experiments I, TA, Tsinghua University, Beijing, China

2014.09-2015.01	Fundamental Physics Principles and Experiments I, TA, Tsinghua University, Beijing, China
2014.09-2015.01	Quantum Field Theory by Lingfeng Li, TA, Tsinghua University, Beijing, China
2016.09-2017.01	Fundamental Physics Principles and Experiments I, TA, Tsinghua University, Beijing, China
2017.02-2017.07	Electromagnetic Dynamics for Engineering, TA, Tsinghua University, Beijing, China

Awards

2017.06	Nomination of the 'Wu Youxun' Award (The highest Award for Postgraduate student of Physics), Tsinghua University, Beijing, China
2016.10	Integrated Excellence Scholarship, Tsinghua University, Beijing, China
2012.09	Fresh Graduate Student Scholarship, Tsinghua University, Beijing, China
2011.12	Academic excellence Scholarship, Tsinghua University, Beijing, China
2009.10	First Price of the 26th Undergraduate Students Physics Competition (Physics Group), China

Referees

Name Tao Han
Institution PITT PACC
Position Director/Distinguished Professor
Contact than@pitt.edu

Name Heather Logan
Institution Department of Physics, Carleton University
Position Chair, Professor
Contact logan@physics.carleton.ca

Name Shufang Su
Institution Department of Physics, University of Arizona
Position Professor
Contact shufang@email.arizona.edu

Name Giacomo Cacciapaglia
Institution Université de Lyon; Institut de Physique Nucléaire de Lyon
Position Professor
Contact g.cacciapaglia@ipnl.in2p3.fr

Name Qing Wang
Institution Department of Physics, Tsinghua University
Position Professor
Contact wangq@mail.tsinghua.edu.cn