

Yue Xu

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Interests

Physics

- Physics beyond the standard model
- Exotic hadrons e.g. tetraquarks and pentaquarks

Instrumental development

- Detector R&D, e.g. ATLAS ITk project
- Machine learning applications for high energy physics
- Track and vertex reconstruction

Education & Academic Experience

2022.09–	Post-doc Supervisor: Xin Chen Department of Physics, Tsinghua University Beijing, China
2017.09–2022.6	Ph.D. Thesis supervisor: Xin Chen Department of Physics, Tsinghua University Beijing, China
2013.09–2017.07	Bachelor Degree, Department of Physics, Jilin University Jilin, China

Research Experience

ATLAS

- Search for $W \rightarrow J/\psi + \pi$ decay, **analysis contact** (2023.11 -)
- Search for resonances in the $J/\psi + \psi(2S)$ channel, **contact editor** (2023.06 -)
- Search for singly charged Higgs boson and doubly charged Higgs boson in the WZ and same-sign W boson pair channel with Run2 + Run3 data, **analysis contact** (2022.11 -)

- ATLAS ITk project (2022.10 -)
 - lead the hybrid burn-in and module thermal cycling site qualifications at China IHEP site
 - study cold noise with vibrometer
- Tracking and vertexing performance study (2021.10 -)
- Measurement of di-jpsi and other possible 4muon final state multiple quarkonium states production in Pb+Pb (2021.05 -)
- Low-mass resonance search in the four-muon final state, **contact editor** (2020.07 - 2023.09)
- Search for Generic Heavy Higgs Boson Using 13 TeV p p Collision Data, **analysis contact** (2019.06 - 2023.07)
- TES calibration: E/p measurement and deconvolution method (2018.08 - 2020.04)

Phenomenology study

- Search for a generic heavy Higgs at the LHC (2018.08–2020.03)

CEPC

- Study the simulation and reconstruction chain; BDT study for $H \rightarrow \tau\tau$ decay channel (2018.03–2018.10)

Leadership

- Convenor of Spectroscopy and Production sub-group in ATLAS (2024.04 -)

Publications

- The ATLAS collaboration, Observation of an excess of di-charmonium events in the four-muon final state with the ATLAS detector. Phys. Rev. Lett. 131. 151902. [arXiv:2304.08962]
- The ATLAS collaboration, A search for heavy Higgs bosons decaying into vector bosons in same-sign two-lepton final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. J. High Energ. Phys. 2023, 200 (2023). [arXiv:2211.02617]
- Xin Chen, **Yue Xu**, Yongcheng Wu, Yu-Ping Kuang, Qing Wang, Hang Chen, Shih-Chieh Hsu, Zhen Hu, Congqiao Li. Search for a generic heavy Higgs at the LHC; Physics Letters B 804, 135358 (2020). [arXiv:1905.05421]
- Dan Yu, Manqi Ruan, Vincent Boudry, Henri Videau, Jean-Claude Brient, Zhigang Wu, Qun Ouyang, **Yue Xu**, Xin Chen; Higgs to $\tau\tau$ analysis in the future e^+e^- Higgs factories; The European Physical Journal C. 80. (2020); [arXiv:1903.12327]
- Fenfen An, et al. ; Precision Higgs physics at the CEPC; Chinese Physics C. 43. 043002. 10.1088/1674-1137/43/4/043002. (2019); [arXiv:1810.09037]

Selected Talks

- 2023.11** Observation of an excess of di-charmonium events in the four-muon final state with the ATLAS detector (hep-ex)
LHC Experiments Committee (LHCC) poster session
- 2023.10** Observation of an excess of di-charmonium events in the four-muon final state with the ATLAS detector (hep-ex)
ATLAS week, Early-career Scientist Session

- 2023.03** Heavy flavour results from ATLAS (hep-ex)
Hybrid International Conference: Particle Physics & Statistical Mechanics (Hypatia2023), online
- 2022.11** A search for heavy Higgs bosons decaying into vector bosons in same-sign two-lepton final states with the ATLAS detector (hep-ex)
The 8th China LHC Physics Workshop (CLHCP2022), online
- 2022.08** ATLAS results on exotic hadronic resonances (hep-ex)
51st International Symposium on Multiparticle Dynamics (ISMD2022), online
- 2021.09** ATLAS results on charmonium production (hep-ex)
LXXI International conference "NUCLEUS – 2021. Nuclear physics and elementary particle physics. Nuclear physics technologies", online
- 2021.06** ATLAS measurements of CP violation and rare decay processes with beauty mesons (poster)
The 28th International Workshop on Weak Interactions and Neutrino (WIN2021), online
- 2021.04** Search for Generic Heavy Higgs Boson Using 13 TeV pp Collision Data at ATLAS (hep-ex)
APS April Meeting 2021, online
- 2020.11** Search for generic heavy Higgs at ATLAS (hep-ex)
The 6th China LHC Physics Workshop (CLHCP2020), online
- 2020.09** E/p and deconvolution method
Tau and HLeptons Workshop, online
- 2019.10** Search for a generic heavy Higgs at the LHC (hep-ph)
The 5th China LHC Physics Workshop (CLHCP2019), Liaoning, China
- 2019.06** E/p Measurement and Shower Uncertainties
ATLAS Tau Workshop 2019, Prague, Czechia
- 2019.05** Search for heavy Higgs at the LHC (hep-ph)
23rd Mini-workshop on the frontier of LHC, Chongqing, China

Software Skills

- **Programming**
 - C/C++
 - ROOT
 - Python
 - Shell Script
- **Generator Package**
 - MadGraph
 - Pythia
 - JHU

Awards

- 2021.10** Integrated Excellence Scholarship, Tsinghua University, Beijing, China