

Yayun He

Curriculum Vitae

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Professional Employment

2021.01-present **Postdoctoral researcher**, *South China Normal University*, Guangzhou, China.
Advisor: Prof. Hongxi Xing

Education

2013.09-2020.12 **Ph.D in Theoretical Physics**, *Central China Normal University*, Wuhan, China.
Supervisor: Prof. Xin-Nian Wang

2009.09-2013.06 **B. S. in Physics**, *Central China Normal University*, Wuhan, China.

Research Interests

My research is concentrated on investigating jet quenching with theoretical and phenomenological calculations in high energy heavy-ion physics, such as solving Boltzmann jet transport equation within a Monte-Carlo model, calculating multiple scatterings with a pQCD framework and applying Bayesian analysis to investigate jet properties.

Recent Academic Experience

- August, 2016 - August, 2018 **Visiting student**, *Lawrence Berkeley National Laboratory*, USA, Supervisor: Xin-Nian Wang.
- June, 2020 **Attending *Hard Probes 2020: International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions***, Austin, United States, Talk: *Event-by-event jet anisotropy and hard-soft tomography in heavy-ion collisions*.
- November, 2019 **Attending *The 28th International Conference on Ultrarelativistic Nucleus-Nucleus Collisions (Quark Matter 2019)***, Wuhan, China, Talk: *Interplaying mechanisms behind inclusive jet R_{AA} and extraction of jet energy loss distributions*.
- August, 2019 **Attending *Seminar at Institute of Modern Physics in Lanzhou***, Lanzhou, China, Conference Talk: *Jet quenching in high-energy heavy-ion collisions: inclusive jet and gamma jet*.
- August, 2019 **Attending *The 13th Workshop on QCD Phase Transition and Relativistic Heavy-ion Physics***, Enshi, China, Talk: *Weak p_T dependence of inclusive jet R_{AA} and extraction of jet energy loss distributions*.
- November, 2018 **Attending *The 7th Asian Triangle Heavy-Ion Conference (ATHIC 2018)***, Hefei, China, Talk: *Event-by-event jet suppression, anisotropy and hard-soft tomography*.
- October, 2018 **Attending *Hard Probes 2018: International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions***, Aix-Les-Bains, France, Talk: *Event-by-event jet suppression, anisotropy and hard-soft tomography*.
- February, 2017 **Attending *Santa Fe Jets and Heavy Flavor Workshop***, Santa Fe, United States, Talk: *Suppression and azimuthal anisotropy of the inclusive jet in high-energy heavy-ion collisions*.

- September-
October,
2015 **Attending *The 25th International Conference on Ultrarelativistic Nucleus-Nucleus Collisions (Quark Matter 2015)***, Kobe, Japan, Poster: *Linear Boltzmann transport for jet propagation in the quark-gluon plasma: elastic processes and medium recoil.*
- August, 2015 **Attending *The 11th Workshop on QCD Phase Transition and Relativistic Heavy-ion Physics***, Harbin, China, Talk: *Linear Boltzmann transport for jet propagation in the quark-gluon plasma: elastic processes and medium recoil.*

Publications

- *Event-by-event jet anisotropy and hard-soft tomography of the quark-gluon plasma.*
Yayun He, Wei Chen, Tan Luo, Shanshan Cao, Long-Gang Pang, and Xin-Nian Wang
arXiv:2201.08408.
- *Search for the Elusive Jet-Induced Diffusion Wake in Z/γ -Jets with 2D Jet Tomography in High-Energy Heavy-Ion Collisions.*
Wei Chen, Zhong Yang, Yayun He, Weiyao Ke, Long-Gang Pang, and Xin-Nian Wang
Phys. Rev. Lett. **127** (2021), 082301, arXiv:2101.05422.
- *Gradient Tomography of Jet Quenching in Heavy-ion Collisions.*
Yayun He, Long-Gang Pang, Xin-Nian Wang.
Phys. Rev. Lett. **125** (2020), 122301, arXiv:2001.08273.
- *Interplaying mechanisms behind single inclusive jet suppression in heavy-ion collisions.*
Yayun He, Shanshan Cao, Wei Chen, Tan Luo, Long-Gang Pang, Xin-Nian Wang.
Phys. Rev. C **99** (2019) 054911, arXiv:1809.02525.
- *Bayesian extraction of jet energy loss distributions in heavy-ion collisions.*
Yayun He, Long-Gang Pang, Xin-Nian Wang.
Phys. Rev. Lett. **122** (2019) 252302, arXiv:1808.05310.
- *Revisiting heavy quark radiative energy loss in nuclei within high-twist approach.*
Yi-Lun Du, Yayun He, Xin-Nian Wang, Hongxi Xing, Hong-Shi Zong.
Phys. Rev. D **98** (2018) 054015. arXiv:1807.06917.
- *Multiple jets and γ -jet correlation in high-energy heavy-ion collisions.*
Tan Luo, Shanshan Cao, Yayun He, Xin-Nian Wang.
Phys. Lett. B **782** (2018) 707-716. arXiv:1803.06785.
- *Linear Boltzmann Transport for Jet Propagation in the Quark-Gluon Plasma: Elastic Processes and Medium Recoil.*
Yayun He, Tan Luo, Xin-Nian Wang, Yan Zhu.
Phys. Rev. C **91** (2015) 054908. arXiv:1503.03313.

Conference Proceedings

- *Gradient tomography of jet quenching in high-energy heavy-ion collisions .*
Yayun He, Long-Gang Pang, Xin-Nian Wang.
PoS Hard Probes 2020, arXiv:2008.13304.
- *Event-by-event jet suppression, anisotropy and hard-soft tomography.*
Yayun He, Shanshan Cao, Wei Chen, Tan Luo, Long-Gang Pang, Xin-Nian Wang.
PoS Hard Probes 2018 (2019) 100.

- *E-by-e jet suppression, anisotropy, medium response and hard-soft tomography.*
Yayun He, Shanshan Cao, Wei Chen, Tan Luo, Long-Gang Pang, Xin-Nian Wang.
Nucl. Phys. A **982** (2019) 635-638, arXiv:1811.08975.
- *Heavy and light hadron production and D-hadron correlation in relativistic heavy-ion collisions.*
Shanshan Cao, Tan Luo, Yayun He, Guang-You Qin, Xin-Nian Wang.
Nucl. Phys. A **967** (2017) 628-631.
- *Study of γ -jet within a Linear Boltzmann Transport model.*
Tan Luo, Shanshan Cao, Yayun He, Enke Wang, Xin-Nian Wang.
Nucl. Part. Phys. Proc. 289-290 (2017) 338-341.
- *R_{AA} vs. v_2 of heavy and light hadrons within a Linear Boltzmann Transport model.*
Shanshan Cao, Long-Gang Pang, Tan Luo, Yayun He, Guang-You Qin, Xin-Nian Wang.
Nucl. Part. Phys. Proc. 289-290 (2017) 217-220.
- *Modification of reconstructed gamma-jets in heavy-ion collisions.*
Tan Luo, Yayun He, Enke Wang, Xin-Nian Wang.
Nucl. Phys. A **956** (2016) 585-588.
- *Medium Recoil and Jet Modification in Heavy Ion Collisions.*
Tan Luo, Yayun He, Enke Wang, Xin-Nian Wang.
Nucl. Part. Phys. Proc. 276-278 (2016) 169-172.
- *Jet propagation within a Linearized Boltzmann Transport Model.*
Tan Luo, Yayun He, Xin-Nian Wang, Yan Zhu.
Nucl. Phys. A **932** (2014) 99-104. arXiv:1504.03741
- *Jet propagation and medium excitation in a quark-gluon plasma.*
Tan Luo, Yayun He, Xin-Nian Wang, Yan Zhu.
Nucl. Phys. A **931** (2014) 460-464.

Miscellaneous

Computer skills

Languages: FORTRAN77/95, C/C++, Python,
Bash, OpenCL, CUDA, MPI

Platforms: Mac OS, Linux, Windows

Tools: Mathematica, LATEX, PAW, ROOT, git

Models: LBT, JETSCAPE, FASTJET, PYTHIA

Languages

Native **Chinese**

Fluent **English**