

## Shanshan Cao

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### Education

2009 – 2014 **Doctor of Philosophy (Ph.D.) in Physics**  
Duke University, Durham, USA

2005 – 2009 **Bachelor of Science (B.S.) in Physics**  
Nanjing University, Nanjing, China

### Research Experience

2020 – present **Professor**  
Shandong University, Qingdao, China

2016 – 2020 **Postdoctoral Research Fellow**  
Wayne State University, Detroit, USA

2014 – 2016 **Postdoctoral Research Fellow**  
Lawrence Berkeley National Laboratory, Berkeley, USA

2009 – 2014 **Graduate Research Assistant**  
Duke University, Durham, USA

2008 – 2009 **Undergraduate Research Assistant**  
Nanjing University, Nanjing, China

### Service to the Profession

- 2023, Organizer of *QCD and Medium to High Energy Nuclear Physics Summer School*, Qingdao, China
- 2023, International Advisory Committee member of *ExploreQGP Workshop*, Belgrade, Serbia
- 2023, Poster Prize Committee member of *LHCP 2023 Conference*, Belgrade, Serbia
- 2022, Organizer of *Jet Quenching in the Quark-Gluon Plasma Workshop*, Trento, Italy
- 2019-2020, Convener of the Statistics Working Group of the JETSCAPE Collaboration
- 2017-2018, Convener of the Physics Working Group of the JETSCAPE Collaboration

- 2015-2016, Convener of the Heavy Quark Working Group of the JET Collaboration

## **Teaching**

- *Thermodynamics and Statistical Physics*: Fall 2022, Fall 2023, Fall 2024, Shandong University.
- *Introduction of heavy-ion physics*: Spring 2022, Spring 2024, Shandong University.
- *College Physics*: Spring 2021, Shandong University.
- *Computational Physics*: Winter 2019, Wayne State University.
- *Introductory Mechanics*: Spring 2013, Duke University.

## **Selected Publications**

(Full publication list at <https://inspirehep.net/> with author ID: [exactauthor:Shan.Shan.Cao.1](#))

- S. Cao, A. Majumder, R. Modarresi-Yazdi, I. Soudi, and Y. Tachibana, *Jet quenching: from theory to simulation*, Int. J. Mod. Phys. E 33 (2024) 2430002.
- S. Cao and G.-Y. Qin, *Medium response and jet-hadron correlations in relativistic heavy-ion collisions*, Annu. Rev. Nucl. Part. Sci. 73 (2023) 205.
- W.-J. Xing, G.-Y. Qin and S. Cao, *Perturbative and non-perturbative interactions between heavy quarks and quark-gluon plasma within a unified approach*, Phys. Lett. B 838 (2023) 137733.
- S. Cao and X.-N. Wang, *Jet quenching and medium response in high-energy heavy-ion collisions: a review*, Rept. Prog. Phys. 84 (2021) 2, 024301.
- S. Cao, et al., *Determining the jet transport coefficient  $q$  from inclusive hadron suppression measurements using Bayesian parameter estimation*, Phys. Rev. C 104 (2021) 2, 024905.
- S. Cao, K.-J. Sun, S. Liu, W.-J. Xing, G.-Y. Qin and C.-M. Ko, *Charmed hadron chemistry in relativistic heavy-ion collisions*, Phys. Lett. B 807 (2020) 135561.
- S. Cao, et al., *Toward the determination of heavy-quark transport coefficients in quark-gluon plasma*, Phys. Rev. C 99 (2019) 5, 054907.
- S. Cao, et al., *Multistage Monte-Carlo simulation of jet modification in a static medium*, Phys. Rev. C 96 (2017) 2, 024909.
- W. Chen, S. Cao, T. Luo, L.-G. Pang and X.-N. Wang, *Effects of jet-induced medium excitation in  $\gamma$ -hadron correlation in  $A+A$  collisions*, Phys. Lett. B 777 (2018) 86-90.
- S. Cao, T. Luo, G.-Y. Qin and X.-N. Wang, *Heavy and light flavor jet quenching at RHIC and LHC energies*, Phys. Lett. B 777 (2018) 255-259.
- S. Cao, T. Luo, G.-Y. Qin and X.-N. Wang, *A linearized Boltzmann transport model for jet propagation in the quark-gluon plasma: Heavy quark evolution*, Phys. Rev. C 94 (2016) 1, 014909.

- S. Cao, G.-Y. Qin and S.A. Bass, *Heavy quark dynamics and hadronization in ultra-relativistic heavy-ion collisions: collisional versus radiative energy loss*, Phys. Rev. C88 (2013) 044907.

### **Selected Talks**

- 05/23/2023 *Recent developments in heavy-ion theory*, an **invited (plenary)** talk at **LHCP 2023**, Belgrade, Serbia
- 11/07/2021 *Jet and heavy-flavor physics in heavy-ion collisions*, an **invited (plenary)** talk at **ATHIC 2021**, Incheon, South Korea
- 11/08/2019 *Heavy quark transport: a theoretical overview*, an **invited (plenary)** talk at **Quark Matter 2019**, Wuhan, China
- 10/01/2018 *Open heavy-flavor probes of QCD matter (theory overview)*, an **invited (plenary)** talk at **Hard Probes 2018**, Aix-Les-Bains, France
- 08/01/2018 *Heavy quark energy loss and hadronization*, an **invited** talk at **Electron-Ion Collider User Group Meeting 2018**, Washington D.C., USA
- 06/01/2018 *Heavy flavor jet quenching at RHIC and LHC energies*, an **invited** talk at **CIPANP 2018**, Palm Springs, USA
- 11/28/2017 *Probing the perfect fluid in relativistic nuclear collisions*, an **invited physics colloquium**, East Carolina University, USA
- 06/27/2016 *Medium modification of open heavy flavor production in heavy-ion collisions*, an **invited (plenary)** talk at **SQM 2016**, Berkeley, USA
- 07/02/2015 *Theoretical progress on open heavy flavors in heavy-ion collisions*, an **invited (plenary)** talk at **Hard Probes 2015**, Montreal, Canada
- 05/22/2015 *Suppression, flow and two-particle correlations of open heavy flavor in relativistic nuclear collisions*, an **invited** talk at **CIPANP 2015**, Vail, USA

### **Research Grants**

- 10/25/2021-10/01/2026 *Startup grant*, National Science Foundation of China (NSFC) under Grant No. 2021-867, 1000000 RMB.
- 01/01/2022-12/31/2025 *Heavy-flavor jet interactions with hot and dense nuclear matter*, National Science Foundation of China (NSFC) under Grant No. 12175122, 600000 RMB.
- 01/01/2023-12/31/2023 *QCD and medium to high energy nuclear physics summer school*, National Science Foundation of China (NSFC) under Grant No. 12247206, 400000 RMB.