Chun SHEN

Department of Physics, Wayne State University

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EDUCATION

2009~2014 **Doctor of Philosophy** GPA: 3.99/4.0
The Ohio State University Major: Theoretical Physics
Graduation date: Aug. 10, 2014 Advisor: Prof. Ulrich Heinz
Thesis Title: The standard model for relativistic heavy-ion collisions and electromagnetic tomography

2005~2009 **Bachelor of Science** GPA: 3.86/4.0
Shanghai Jiao Tong University Major: Applied Physics
Graduation date: June 30, 2009 Advisor: Prof. Lie-wen Chen
Thesis Title: Nuclear Surface Property and Its Isospin Dependence

PROFESSIONAL EXPERIENCE

- Assistant Professor *Wayne State University* 2018.08~present
- Research Fellow *RIKEN BNL Research Center* 2018.08~present
- Adjunct Assistant Professor *The Ohio State University* 2018.09~present
- Goldhaber Fellow *Brookhaven National Laboratory* 2016~2018
- Postdoctoral Fellow *McGill University* 2014~2016
- Research Assistant *The Ohio State University* 2011~2014
- Teaching & Research Assistant *The Ohio State University* 2010~2011
- Research Assistant *The Ohio State University* 2009~2010

ACADEMIC AWARDS

- IUPAP Young Scientist Prize in Nuclear Physics 2019. 02
  International Union of Pure and Applied Physics
  — Citation: "For his groundbreaking contributions to the field of high energy nuclear physics, and in particular his development of a comprehensive code package dynamically simulating all stages of relativistic heavy-ion collisions of importance for the investigation of strongly-coupled quark-gluon plasmas."

- Goldhaber Fellow *Brookhaven National Laboratory* 2016. 04
  — The most prestigious postdoc fellowship offered by Brookhaven National Laboratory, which is awarded to candidates with exceptional talent and credentials who have a strong desire for independent research at the frontiers of their fields.

- J. Robert Oppenheimer Fellow (declined) *Los Alamos National Laboratory* 2016. 01
  — The most prestigious postdoc fellowship offered by Los Alamos National Laboratory, which recognizes individuals whose research aligns with the Laboratory's mission and who have demonstrated outstanding ability in research.

- APS Dissertation Award in Nuclear Physics *American Physics Society* 2015.10
  — Citation: "For his successful prediction of anisotropic flow in Pb+Pb collisions at the LHC, his elucidation of the 'direct photon flow puzzle', and his contributions to the development of a computational tool of viscous fluid dynamics enabling precision studies of relativistic heavy-ion collisions."

- Honorable mention in the 2015 RHIC and AGS Thesis Award competition 2015.06
  — The only recipient with a thesis in theory in the 2015 competition

- Chinese National Award for Outstanding Ph.D. Students Abroad 2014.01
  — This prestigious award recognizes top Chinese Ph.D. students *across all fields of study* around the world who study abroad without receiving financial support from the Chinese government

- Elizabeth Clay Howald Presidential Fellowship *The Ohio State University* 2013~2014
  — This prestigious award recognizes outstanding scholarship and research ability at The Ohio State University *across all fields of study*, and provides recipients the opportunity to devote full time to the dissertation research
  — One of the only two recipients awarded such a named Presidential Fellowship in 2012 Fall

- Outstanding Academic papers by students (OAPS) *Shanghai Jiao Tong University* 2009
  — This program recognizes outstanding academic researches by undergraduate students *across all fields* in Shanghai Jiao Tong University and provides a platform for international communication
  — The only recipient in physics in 2009 competition

- Excellent Academic Scholarship 3rd-class *Shanghai Jiao Tong University* 2007-2008
- Excellent Academic Scholarship special *Shanghai Jiao Tong University* 2006-2007
- Excellent Tri-A Student Scholarship *Shanghai Jiao Tong University* 2006-2007
- Excellent Academic Scholarship 3rd-class *Shanghai Jiao Tong University* 2005-2006

PUBLICATIONS AND PRESENTATIONS

101 scientific papers with **4081** citations h_{HEP} index: **30**[1]; **4602** citations h-index: **30**[2]
Citation Statistics highlight[1]: *250+*: **3** paper; *100-249*: **10** papers; *50-99*: **11** papers;
84 talks/seminars in total; **65** invited/competitive selected talks including invited plenary overview talks at Initial Stages 2019, INPC 2019, Quark Matter 2015 and Hard Probes 2015

COMMUNITY SERVICE

- Peer review referee
  - Physical Review Letters
  - Physics Letter B
  - Physical Review C
  - Physical Review D
  - Journal of Physics G
  - European Physical Journal A
  - Nuclear Physics A
  - Physica Scripta
  - Chinese Physics C
  - Universe
- Conference/summer school organized
  - Lecturer for 75th SUSSP and 20th STFC Summer School in Nuclear Physics and its Applications, University of St Andrews, Scotland, UK, Aug. 5-17, 2019, https://sites.google.com/a/york.ac.uk/uknpss2019
  - Co-organizer of symposium on Jet and Electromagnetic Tomography of Dense Matter, McGill University, Canada, June 26-27, 2015 http://www.physics.mcgill.ca/jet15/
  - Co-organizer of Hard Probes 2015 Summer School, McGill University, Canada, June 27-28, 2015 http://www.physics.mcgill.ca/hp2015-ss/

ASSOCIATION MEMBERSHIPS

[1] from INSPIRE, http://inspirehep.net/author/profile/Chun.Shen.1 (08/20/2020)
[2] from Google Scholar, https://scholar.google.ca/citations?user=HEtbL2UAAAAJ&hl=en (08/20/2020)

- Young scientist Member, American Physical Society

RESEARCH INTERESTS

- Precision fluid dynamical modelling of quark-gluon plasma at finite baryon density
- Jet and electromagnetic tomography in strongly-coupled systems
- Rapid thermalization and out-of-equilibrium physics of many-body QCD
- Gluon saturation and 3D imaging of nucleus at high energy

RESEARCH AND TEACHING EXPERIENCE

- *Postdoctoral Research*:
  - Develop the first full (3+1)-d relativistic hydrodynamic model which includes net baryon current and its dissipative diffusion which is a key component for the RHIC Beam Energy Scan program
  - Propose to use electromagnetic and QCD jet probes to understand the property and dynamics of the possible smallest QGP droplet created in high energy proton-lead collisions
  - State-of-the-art precision prediction of hadronic flow observables in Pb+Pb collisions at the highest 5.02 TeV at LHC to understand the property of the hottest QGP ever created in experiments
  - Develop and maintain the open-source full (3+1)-d relativistic hydrodynamic model, MUSIC, http://www.physics.mcgill.ca/music/

- *Postdoctoral Teaching and Mentoring*:
  - Co-mentor 4 graduate students to conduct scientific research on relativistic heavy-ion collisions in various aspects, namely collective dynamics (*Scott McDonald*), QCD jets energy loss (*Chanwook Park*), hydrodynamic fluctuations (*Mayank Singh*), and electromagnetic radiation near thermal equilibrium (*Sigtryggur Hauksson*)
  - Organizing weekly based journal club, group meeting, and nuclear seminar
  - Give a 3-lecture course on introduction to relativistic hydrodynamics

- *Doctoral Research*:
  - Develop the first complete integrated and open-source theoretical framework to model the dynamical evolution of relativistic heavy-ion collisions, http://u.osu.edu/vishnu/
  - Pioneered in studying thermal photon emissions from a nearly equilibrated quark gluon plasma and propose electromagnetic probes as a good viscometer for the QGP

- *Graduate Teaching and Mentoring:*
  - Co-mentor 4 undergraduate students together with my phd supervisor to conduct phenomenological research for U+U (*Andy Goldschmidt*) and p+A collisions (*Kevin Welsh, Jordan Singer, and Brian Baker*) at the RHIC and the LHC and in results of 2 scientific papers
  - Teaching assistant for graduate level electromagnetism course

- *Undergraduate Research*:
  - Study the isospin dependence of the bulk and surface properties of nuclei based on nuclear droplet model and in results of my first co-authored scientific paper (cited 75 times up to now).

REFERENCES

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  The Ohio State University
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  Columbus OH, USA, 43210
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- Charles Gale
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  McGill University
  3600 rue University,
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- Raju Venugopalan
  Group Leader, Nuclear Theory Group
  Physics Department,
  Brookhaven National Laboratory
  Upton, NY 11973, USA
  Adjunct Professor
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- Bjoern Schenke
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PUBLICATION LIST[3]

Letters

1. S. Cao, A. Majumder, G.-Y. Qin, **C. Shen**, "Drag Induced Radiation and Multi-Stage Effects in Heavy-Flavor Energy Loss", Phys. Lett. B**793** (2019) 433-439, arXiv: 1711.09053 [nucl-th] ***[7 citations]***

2. H. Mantysaari, B. Schenke, **C. Shen**, and P. Tribedy, "Imprints of fluctuating proton shapes on flow in proton-lead collisions at the LHC", Phys. Lett. B**772** (2017) 681-686. ***[51 citations]***

3. **C. Shen**, J.-F. Paquet, G. S. Denicol, S. Jeon and C. Gale, "Thermal photon radiation in high multiplicity p+Pb collisions at the Large Hadron Collider", Phys. Rev. Lett. **116**, 072301 (2016). ***[24 citations]***

4. S. Ryu, J.F. Paquet, **C. Shen**, G.S. Denicol, B. Schenke, S. Jeon and C. Gale, "The importance of the bulk viscosity of QCD in ultrarelativistic heavy-ion collisions", Phys. Rev. Lett, **115**, 132301 (2015). ***[180 citations]***

5. A. Majumder and **C. Shen**, "Suppression of the high p_T charged hadron R_{AA} at the LHC", Phys. Rev. Lett. **109** 202301 (2012) ***[70 citations]***

6. Z. Qiu, **C. Shen** and U. Heinz, "Hydrodynamic elliptic and triangular flow in Pb-Pb collisions at sqrt(s) = 2.76A TeV", Phys. Lett. B **707**, 151 (2012). ***[208 citations]***

7. H. Song, S. A. Bass, U. Heinz, T. Hirano and **C. Shen**, "200 A GeV Au+Au collisions serve a nearly perfect quark-gluon liquid", Phys. Rev. Lett. **106**, 192301 (2011). ***[360 citations]***

Invited Featured Articles

8. **C. Shen** and U. Heinz, "The road to precision: Extraction of the specific shear viscosity of the quark-gluon plasma", invited feature article in Nuclear Physics News Vol. 25, issue 2, 2015, arXiv:1507.01558 [nucl-th]. ***[18 citations]***

Regular Articles

9. A. Monnai, B. Schenke, **C. Shen**, "Equation of state at finite densities for QCD matter in nuclear collisions", Phys. Rev. C100 (2019), 024907, arXiv:1902.05095 [nucl-th] [***6 citations]***

10. B. Schenke, **C. Shen**, P. Tribedy, "Multi-particle and charge-dependent azimuthal correlations in heavy-ion collisions at the Relativistic Heavy-Ion Collider", Phys. Rev. C99 (2019) 044908, arXiv:1901.04378 [nucl-th] ***[8 citations]***

[3] Citation data is based on INSPIRE (08/21/2019)

11. M. Li and **C. Shen**, "Longitudinal Dynamics of High Baryon Density Matter in High Energy Heavy-Ion Collisions", Phys. Rev. C**98** (2018) 064908, arXiv:1809.04034 [nucl-th] ***[4 citations]***

12. U. Gursoy, D. Kharzeev, E. Marcus, K. Rajagopal, **C. Shen**, "Charge-dependent Flow Induced by Magnetic and Electric Fields in Heavy Ion Collisions", Phys. Rev. C**98** (2018) 055201, arXiv: 1806.05288 [nucl-th] ***[12 citations]***

13. A. Dubla, S. Masciocchi, J. M. Pawlowski, B. Schenke, **C. Shen**, J. Stachel, "Towards QCD-assisted hydrodynamics for heavy-ion collisions phenomenology", Nucl. Phys. A **979**, 251 (2018), arXiv: 1805.02985 [nucl-th] ***[6 citations]***

14. G. Denicol, C. Gale, S. Jeon, A. Monnai, B. Schenke, **C. Shen**, "Net baryon diffusion in fluid dynamic simulations of relativistic heavy-ion collisions", Phys. Rev. C 98 034916 (2018), arXiv: 1804.10557 [nucl-th] [editor suggestions] ***[25 citations]***

15. A. Czajka, S. Hauksson, **C. Shen**, S. Jeon, and C. Gale, "Bulk viscosity fo strongly interacting matter in the relaxation time approximation", Phys. Rev. C97 (2018) 044914, arXiv: 1712.05905 [nucl-th]. ***[5 citations]***

16. **C. Shen** and B. Schenke, "Dynamical initial state model for relativistic heavy-ion collisions", Phys. Rev. C97 (2018) 024907, arXiv: 1710.00881 [nucl-th]. ***[36 citations]***

17. S. Ryu, J-F. Paquet, **C. Shen**, G. Denicol, B. Schenke, S. Jeon, C. Gale, "Effects of bulk viscosity and hadronic rescattering in heavy ion collisions at RHIC and LHC", Phys. Rev. C97 (2018) 034910, arXiv: 1704.04216 [nucl-th] ***[32 citations]***

18. S. Cao *et al.* [JETSCAPE Collabroation], "Multistage Monte-Carlo simulation of jet modification in a static medium", Phys. Rev. C96 (2017) 024909, arXiv: 1705.00050 [nucl-th] ***[24 citations]***

19. I. Iatrakis, E. Kiritsis, **C. Shen,** and D. L. Yang, "Holographic Photon Production in Heavy-Ion Collisions", JHEP **1704** (2017) 035, arXiv: 1609.07208 [hep-ph] ***[13 citations]***

20. S. McDonald, **C. Shen**, F. Fillion-Gourdeau, S. Jeon, and C. Gale, "Hydrodynamic Predictions for Pb+Pb collisions at 5.02 A TeV", Phys. Rev. C**95** (2017) 064913, arXiv: 1609.02958 [hep-ph]. [editor suggestions] ***[47 citations]***

21. **C. Shen**, J.F. Paquet, G.S. Denicol, S. Jeon, and C. Gale, "Collectivity and electromagnetic radiation in small systems", Phys. Rev. **C95** (2017) 014906, arXiv: 1609.02590 [nucl-th]. ***[51 citation]***

22. N. b. Chang *et al., "*Physics perspectives of heavy-ion collisions at very high energy", *Science China: Physics, Mechanics & Astronomy*, arXiv:1510.05754 [nucl-th]. ***[18 citations]***

23. J. F. Paquet, **C. Shen**, G. S. Denicol, M. Luzum, B. Schenke, S. Jeon and C. Gale, "The production of photons in relativistic heavy-ion collisions", Phys. Rev. **C93** (2016) 044906, arXiv:1509.06738 [hep-ph]. ***[115 citations]***

24. A. Goldschmidt, Z. Qiu, **C. Shen** and U. Heinz, "Collision Geometry and Flow in Uranium+Uranium Collisions", Phys. Rev. C **92**, 044903 (2015), arXiv:1507.03910 [nucl-th]. ***[16 citations]***

25. **C. Shen**, Z. Qiu, H. Song, J. Bernhard, S. Bass, and U. Heinz, "The iEBE-VISHNU code package for relativistic heavy-ion collisions", Comp. Phys. Commun. 199 (2016) 61-85, arXiv:1409.8164 [nucl-th]. ***[179 citations]***

26. **C. Shen**, Z. Qiu and U. Heinz, "Shape and flow fluctuations in ultra-central Pb+Pb collisions at the LHC'', Phys. Rev. C **92**, 014901 (2015), arXiv:1502.04636 [nucl-th] ***[25 citations]***

27. J. Liu, **C. Shen,** and U. Heinz, "Pre-equilibrium evolution effects on heavy-ion collision observables,", Phys. Rev. C **91**, 064906 (2015), arXiv:1504.02160 [nucl-th] ***[37 citations]***

28. **C. Shen**, U. Heinz, J.-F. Paquet, I. Kozlov, and C. Gale, "Anisotropic flow of thermal photons as a quark-gluon plasma viscometer", Phys. Rev. C **91**, 024908 (2015), arXiv: 1308.2111 ***[85 citations]***

29. **C. Shen**, J.F. Paquet, U. Heinz, and C. Gale, "Photon Emission from a Momentum Anisotropic Quark-Gluon Plasma", Phys. Rev. C **91**, 014908 (2015) ***[33 citations]***

30. K. M. Burke *et al.* [JET Collaboration], "Extracting the jet transport coefficient from jet quenching in high-energy heavy-ion collisions,'', Phys. Rev. C **90**, 014909 (2014), arXiv:1312.5003 [nucl-th]. ***[239 citations]***

31. **C. Shen**, U. Heinz, J.-F. Paquet, and C. Gale, "Thermal photons as a quark-gluon plasma thermometer revisited", Phys. Rev. C **89**, 044910 (2014), arXiv: 1308.2440 [editor suggestions] ***[105 citations]***

32. C. Plumberg, **C. Shen**, U. Heinz, "HBT interferometry relative to the triangular flow plane in heavy-ion collisions", Phys. Rev. C **88**, 044914 (2013), arXiv: 1306.1485 ***[20 citations]***

33. U. Heinz, Z. Qiu, **C. Shen**, "Fluctuating flow angles and anisotropic flow measurements", Phys. Rev. C**87**, 034913 (2013) ***[93 citations]***

34. Z. Qiu, **C. Shen**, U. Heinz, "Resonance decay contributions to higher-order anisotropic flow coefficients", Phys. Rev. C**86**, 064906 (2012) ***[10 citations]***

35. **C. Shen** and U. Heinz, "Collision Energy Dependence of Viscous Hydrodynamic Flow in Relativistic Heavy-Ion Collisions", Phys. Rev. C **85**, 054902 (2012). ***[72 citations]***

36. **C. Shen**, U. Heinz, P. Huovinen and H. Song, "Radial and elliptic flow in Pb+Pb collisions at the Large Hadron Collider from viscous hydrodynamic", Phys. Rev. C **84**, 044903 (2011). ***[250 citations]***

37. H. Song, S. A. Bass, U. Heinz, T. Hirano and **C. Shen**, "Hadron spectra and elliptic flow for 200 A GeV Au+Au collisions from viscous hydrodynamics coupled to a Boltzmann cascade", Phys. Rev. C **83**, 054910 (2011). ***[131 citations]***

38. **C. Shen** and U. Heinz, "Hydrodynamic flow in heavy-ion collisions with large hadronic viscosity", Phys. Rev. C **83**, 044909 (2011). ***[30 citations]***

39. **C. Shen**, U. Heinz, P. Huovinen and H. Song, "Systematic parameter study of hadron spectra and elliptic flow from viscous hydrodynamic simulations of Au+Au collisions at sqrt(s_NN) = 200 GeV", Phys. Rev. C **82**, 054904 (2010). ***[139 citations]***

40. T. Renk, H. Holopainen, U. Heinz and **C. Shen**, "A systematic comparison of jet quenching in different fluid-dynamical models", Phys. Rev. C. **83** 014910 (2011). ***[44 citations]***

41. L. W. Chen, B. J. Cai, C. M. Ko, B. A. Li, **C. Shen** and J. Xu, "High-order effects on the incompressibility of isospin asymmetric nuclear matter", Phys. Rev. C **80**, 014322 (2009). ***[126 citations]***

Conference Proceedings

42. A. Majumder, S. Cao, **C. Shen**, G. Y. Qin, "Effects of drag induced radiation and multi-stage evolution on heavy quark energy loss", PoS HardProbes2018 (2019) 130, arXiv: 1902. 02217 [nucl-th] ***[0 citations]***

43. C. Gale, S. Jeon, S. Mcdonald, J-F. Paquet, **C. Shen**, "Centrality dependence of the direct photon multiplicity in heavy ion collisions", PoS HardProbes2018 (2019) 178, arXiv: 1901.07019 [nucl-th] ***[1 citations]***

44. JETSCAPE Collaboration, "Jet substructure modifications in a QGP from multi-scale description of jet evolution with JETSCAPE", PoS HardProbes2018 (2018) 099, arXiv: 1812.06366 [nucl-th] ***[1 citations]***

45. C. Gale, S. Jeon, S. McDonald, J-F. Paquet, **C. Shen**, "Photon radiation from heavy-ion collisions in the sqrt{s_NN} = 19-200 GeV regime", Nucl. Phys. A**982** (2019) 767-770, arXiv: 1807.09326 [nucl-th] ***[2 citations]***

46. M. Singh, **C. Shen**, S. McDonald, S. Jeon, C. Gale, "Hydrodynamic Fluctuations in Relativistic Heavy-Ion Collisions", Nucl. Phys. A**982** (2019) 319-322, arXiv: 1807.054551 [nucl-th] ***[7 citations]***

47. **C. Shen**, B. Schenke, "Dynamical initialization and hydrodynamic modelling of relativistic heavy-ion collisions", Nucl. Phys. A**982** (2019) 411-414, arXiv: 1807.05141 [nucl-th] ***[5 citations]***

48. B. Schenke, **C. Shen**, P. Tribedy, "Features of the IP-Glasma", Nucl. Phys. A**982** (2019) 435-438, arXiv: 1807.05205 [nucl-th] ***[5 citations]***

49. **C. Shen**, B. Schenke, "Initial state and hydrodynamic modelling of heavy-ion collisions at RHIC BES energies", PoS CPOD2017 (2018) 006, arXiv: 1711.10544. ***[3 citations]***

50. H. Mantysaari, B. Schenke, **C. Shen**, and P. Tribedy, "Proton structure fluctuations: from HERA to the LHC", PoS DIS2017 (2018) 060, arXiv: 1706.05937 [nucl-th] ***[1 citations]***

51. J. F. Paquet, **C. Shen**, G. Denicol, S. Jeon, and C. Gale, "Phenomenological constraints on the bulk viscosity of QCD", Nucl. Phys. A **967** (2017) 429-432 ***[4 citations]***

52. A. Kumar, E. Bianchi, J. Elledge, A. Majumder, G. Y. Qin, and **C. Shen**, "Solving the \hat{q} puzzle and x and scale dependence", Nucl. Phys. A **967** (2017) 536-539, arXiv: 1706.07547 [nucl-th] ***[3 citations]***

53. H. Mantysaari, B. Schenke, **C. Shen**, and P. Tribedy, "Proton structure fluctuations: constraints from HERA and applications to p+A collisions", Nucl. Phys. A **967** (2017) 317-320, arXiv: 1705.03735 [nucl-th] ***[0 citations]***

54. S. McDonald, **C. Shen**, F. Fillion-Gourdeau, S. Jeon, C. Gale, "Pre-equilibrium Longitudinal Flow in the IP-Glasma Framework for Pb+Pb Collisions at the LHC", Nucl.Part.Phys.Proc. **289-290** (2017) 461-464, arXiv: 1704.07680 [nucl-th] ***[1 citations]***

55. S. McDonald, **C. Shen**, F. Fillion-Gourdeau, S. Jeon, C. Gale, "A Detailed Study and Synthesis of Flow Observables in the IP-Glasma+MUSIC+UrQMD Framework", Nucl. Phys. A **967** (2017) 393-396, arXiv: 1704.05362 [nucl-th] ***[1 citations]***

56. **C. Shen**, G. Denicol, C. Gale, S. Jeon, A. Monnai, B. Schenke, "A hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies", Nucl. Phys. A **967** (2017) 796-799, arXiv: 1704.04109 [nucl-th] ***[11 citations]***

57. G. Vujanovic, J. F. Paquet, **C. Shen**, G. Denicol, S. Jeon, C. Gale, U. Heinz, "Dilepton radiation and bulk viscosity in heavy-ion collisions", Nucl.Part.Phys.Proc. **289-290** (2017) 165-168, arXiv: 1703.06164 ***[4 citations]***

58. G. Vujanovic, J. F. Paquet, **C. Shen**, G. Denicol, S. Jeon, C. Gale, U. Heinz, "Bulk viscous effects on flow and dilepton radiation in a hybrid approach", Nucl. Phys. A **967** (2017) 692-695, arXiv: 1704.04687 [nucl-th]. ***[3 citations]***

59. I. Iatrakis, E. Kiritsis, **C. Shen**, and D. L. Yang, "Direct photon spectra and anisotropic flow in heavy-ion collisions from holography", EPJ Web Conf. **137**, 07029 (2017) ***[1 citations]***

60. C. Park, **C. Shen**, S. Jeon, C. Gale, "Rapidity-dependent jet energy loss in small systems with finite-size effects and running coupling", Nucl.Part.Phys.Proc. **289-290** (2017) 289-292, arXiv: 1612.06754 ***[6 citations]***

61. S. Hauksson, **C. Shen**, S. Jeon, C. Gale, "Bulk viscous corrections to photon production in the quark-gluon plasma", Nucl.Part.Phys.Proc. **289-290** (2017) 169-172, arXiv: 1612.05517 ***[4 citations]***

62. **C. Shen**, J. F. Paquet, G. Denicol, S. Jeon, C. Gale, "Electromagnetic radiation and collectivity in small quark-gluon droplets", Nucl.Part.Phys.Proc. **289-290** (2017) 161-164, arXiv: 1612.05464 ***[1 citations]***

63. I. Iatrakis, E. Kiritsis, **C. Shen**, and D. L. Yang, "Holography photon production and anisotropic flow", Nucl.Part.Phys.Proc. **289-290** (2017) 177-180, arXiv: 1612.05114 ***[1 citations]***

64. J. F. Paquet, **C. Shen**, G. Denicol, M. Luzum, B. Schenke, S. Jeon, and C. Gale, "Thermal and prompt photons at RHIC and the LHC", Nucl. Phys. A, **956**, 409-412 (2016) ***[2 citations]***

65. **C. Shen**, C. Park, J. F. Paquet, G. S. Denicol, S. Jeon and C. Gale, "Direct photon production and jet energy-loss in small systems", Nucl, Phys. A, **956**, 741-744 (2016), arXiv:1601.03070 [hep-ph]. ***[10 citations]***

66. **C. Shen**, "Electromagnetic Radiation from QCD Matter: Theory Overview", Nucl. Phys. A, **956**, 184-191 (2016), arXiv:1601.02563 [nucl-th]. ***[21 citations]***

67. **C. Shen,** "Recent developments in the theory of electromagnetic probes in relativistic heavy-ion collisions", Nuclear and Particle Physics Proceedings, **276-278**, 72-77 (2016), arXiv:1511.07708 [nucl-th]. ***[6 citations]***

68. G. Vujanovic, **C. Shen**, G. S. Denicol, B. Schenke, S. Jeon and C. Gale, "Probing the dissipative properties of a strongly interacting medium with dileptons", Nuclear and Particle Physics Proceedings, **276-278**, 113-114 (2016), arXiv:1511.04625 [nucl-th]. ***[3 citations]***

69. G. Vujanovic, G. S. Denicol, **C. Shen**, M. Luzum, B. Schenke, S. Jeon and C. Gale, "Dilepton emission in high-energy heavy-ion collisions with dissipative hydrodynamics", arXiv:1510.00441 [nucl-th]. ***[2 citations]***

70. A. Goldschmidt, Z. Qiu, **C. Shen** and U. Heinz, "Collision Geometry and Flow in Uranium+Uranium Collisions", arXiv:1502.00603 [nucl-th]. ***[10 citations]***

71. **C. Shen**, J.-F. Paquet, J. Liu, G. Denicol, U. Heinz and C. Gale, "Event-by-event direct photon anisotropic flow in relativistic heavy-ion collisions", Nucl. Phys. A **931** 675-580, arXiv:1407.8533 [nucl-th]. ***[15 citations]***

72. U. Heinz, J. Liu and **C. Shen**, "Electromagnetic fingerprints of the Little Bang'', Nucl. Phys. A **932**, 310, arXiv:1403.8101 [nucl-th]. ***[10 citations]***

73. **C. Shen**, U. Heinz, J.-F. Paquet and C. Gale, "Thermal photon anisotropic flow serves as a quark-gluon plasma viscometer", Nucl. Phys. A **932**, 184, arXiv:1403.7558 [nucl-th]. ***[25 citations]***

74. **C. Shen** and U. Heinz, "Viscous Flow in Heavy-Ion Collisions from RHIC to LHC", Nucl. Phys. A**904-905** 361c-364c (2013). ***[5 citations]***

75. U. Heinz, **C. Shen** and H. Song, "The viscosity of quark-gluon plasma at RHIC and the LHC", AIP Conf. Proc. **1441** (2012) 766-770. ***[104 citations]***

76. **C. Shen**, S. A. Bass, T. Hirano, P. Huovinen, Z. Qiu, H. Song and U. Heinz, "The QGP shear viscosity: Elusive goal or just around the corner?", J. Phys. G **38**, 124045 (2011). ***[50 citations]***

77. T. Renk, J. Auvinen, K. J. Eskola, U. Heinz, H. Holopainen, R. Paatelainen and **C. Shen**, "Systematics of parton-medium interaction from RHIC to LHC", J. Phys. G **38**, 124089 (2011). ***[3 citations]***

78. L. W. Chen, B. J. Cai, **C. Shen**, C. M. Ko, J. Xu and B. A. Li, "Incompressibility of asymmetric nuclear matter", Int. J. Mod. Phys. E **19**, 1675 (2010). ***[0 citations]***

Under peer-review

79. B. Schenke, C. Shen, P. Tribedy, "Hybrid Color Glass Condensate and hydrodynamic description of the Relativistic Heavy Ion Collisions small system scan", *submitted to Phys. Lett. B*, arXiv: 1908.06212 ***[0 citations]***

80. JETSCAPE Collaboration, "The JETSCAPE framework", s*ubmitted to Comp. Phys. Comm.*, arXiv: 1903.07706 [nucl-th] ***[2 citations]***

81. G. Vujanovic, J.F. Paquet, C. Shen, G. Denicol, S. Jeon, C. Gale, U. Heinz, "Exploring the influence of bulk viscosity of QCD on dilepton tomography", *submitted to Phys. Rev. C*, arXiv: 1903.05078 [nucl-th] ***[0 citations]***

82. E. Bianchi, J. Elledge, A. Kumar, A. Majumder, G. Y. Qin, and **C. Shen**, "The x and Q^2 dependence of qhat, quasi-particles and the JET puzzle", *submitted to Phys. Rev. Lett.*, arXiv: 1702.00481. ***[9 citations]***

TALKS AND SEMINARS

Invited

1. “Dynamical modeling of relativistic heavy-ion collisions at beam energy scan energies”, Invited Nuclear Seminar, University of Minnesota, Feb. 25, 2020

2. “Fluid dynamic applications in relativistic heavy-ion collisions”, Invited Wayne State Analysis and PDE Seminar, Wayne State University, Feb. 19, 2020

3. “Studying QGP with flow: Theory”, Invited plenary talk, Quark Matter 2019, Wuhan China, Nov. 7, 2019

4. “Pushing relativistic fluid dynamics to challenging environments”, Invited talk, APS DNP meeting, Arlington VA, Oct. 17, 2019

5. “Pushing relativistic fluid dynamics to challenging environments”, Invited nuclear seminar, Kent State University, Sept. 24, 2019

6. Three invited lectures on “Heavy-Ion Physics” at UK Nuclear Physics Summer School, St. Andrew University, Scotland, Aug.6 – Aug. 8, 2019

7. “Characterize quark-gluon plasma with relativistic heavy-ion collisons”, Invited plenary talk, International Nuclear Physics Conference 2019, Glasgow UK, July 31, 2019

8. “Hydro perspectives on BES/longitudinal dynamics”, Invited plenary talk, Initial Stages 2019, Columbia university, New York City NY, June 26, 2019

9. “Dynamical modeling of bulk evolution at RHIC BES”, Invited talk, APS GHP meeting, Denvor CO, April 11, 2019

10. “Dynamical modeling of small systems”, Contributed talk, Small systems workshop, Rice University TX, Mar. 14, 2019

11. “Characterize Quark-Gluon Plasma with Relativistic Heavy-Ion Collisions”
    Invited Plenary talk, International Nuclear Physics Conference 2019, Glasgow, UK, July 31, 2019

12. “Hydrodynamic perspectives on BES/Longitudinal dynamics”
    Invited Plenary talk, Initial Stages 2019, Columbia University, June 26, 2019

13. “Dynamical Modeling of Bulk Evolution at RHIC BES”,
Invited talk, APS GHP Meeting 2019, Denver, April 11, 2019

14. “Multi-particle and charge-dependent correlations at RHIC”
Invited nuclear seminar talk, The Ohio State University, Jan. 30, 2019

15. “Multi-particle and charge-dependent correlations at RHIC”
BEST Collaboration CME online Meeting, Jan. 18, 2019

16. “Photons from baryon-rich fluid at beam energy scan energies”
Invited talk in Workshop on Electromagnetic Radiation from Hot and Dense Hadronic Matter, ECT* Trento Italy, Nov 29, 2018

17. “Dynamical modeling of relativistic heavy-ion collisions: correlations from flow and beyond”
Invited nuclear seminar talk, Wayne State University, Oct. 19, 2018

18. “Initial State and hydro group status report”
BEST Collaboration Meeting, LBNL Berkeley, Aug. 20, 2017

19. “JETSCAPE 1.0 — an event generator for heavy-ion collisions”
Invited talk in Workshop on Probing Quark-Gluon Matter with Jets, BNL, July 23, 2018

20. “Theory for the Beam Energy Scan Program”
Invited talk in the STAR Collaboration Meeting, Lehigh University, July 16, 2018

21. “Collectivity and electromagnetic radiation in small collision systems”
Invited talk in the Second International Workshop on Collectivity in Small Collision Systems, CCNU Wuhan China, June 14, 2018

22. “Dynamical initialization and hydrodynamic modelling of relativistic heavy-ion collisions”
Selected parallel talk at the 27th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2018, Venice Italy, May 16, 2018

23. “Dynamical initialization and hydrodynamic modelling of relativistic heavy-ion collisions”
Invited talk at the APS April Meeting, Columbus, OH, Apr. 15, 2018

24. “Going with the flow — the nuclear phase diagram at the highest temperature and densities”
    Invited HENPIC-EVO talk, online, Mar. 22, 2018

25. “Going with the flow — the nuclear phase diagram at the highest temperature and densities”
    Invited Physics Colloquium at East Carolina University, Greenville NC, Mar. 22, 2018

26. “Going with the flow — the nuclear phase diagram at the highest temperature and densities”
    Invited Physics Colloquium at Wayne State University, Feb. 8, 2018

27. “Going with the flow — the nuclear phase diagram at the highest temperature and densities”
    Invited Physics Colloquium at University of Minnesota, Jan. 23, 2018

28. “Hydrodynamics: state of the art”
    Invited talk at the JETSCAPE winter workshop, LBNL, Jan. 6, 2018

29. “Dynamical modelling of relativistic heavy-ion collisions at the RHIC BES energies”
    Invited nuclear seminar at LBNL, Berkeley, Nov. 15, 2017

30. “Dynamical initial state model for relativistic heavy-ion collisions”
    Invited talk at the NA61-theory meeting, Nov. 9, 2017

31. “Hydrodynamic modelling of RHIC BES”
    Invited talk at the Critical Point and Onset of Deconfinement 2017, Stony Brook University, Aug 8, 2017

32. “Hydrodynamic Simulations for the RHIC-BES, Progress, and Challenges ”
    Invited talk at the BEST Collaboration Meeting, Stony Brook University, Aug 5, 2017

33. “Hydrodynamics in small collision systems from LHC to RHIC”
    Invited talk at RHIC & AGS Users’ Meeting, Brookhaven National Lab, June 20, 2017

34. “Dancing with MUSIC — recent progress and future”
    Invited talk at Symposium on Light, Color and Dense Matter, University of Minnesota, June 14, 2017

35. “Hydrodynamics with sources”
Invited talk at INT workshop, University of Washington, May. 22, 2017

36. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Invited talk at STAR Collaboration meeting, Brookhaven National Lab, May. 18, 2017

37. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Invited nuclear seminar talk, McGill University, Mar. 30, 2017

38. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Invited nuclear seminar talk, The Ohio State University, Mar. 20, 2017

39. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Invited nuclear seminar talk, Stony Brook University, Feb. 23, 2017

40. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Selected parallel talk at the 26th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2017, Chicago, Feb. 7, 2017

41. “Photon Puzzle at RHIC: a theory perspective”
Invited talk given at APS GHP meeting 2017, Washington DC, Feb. 2, 2017

42. “Hydrodynamics Module in The JETSCAPE Framework”
Invited talk given at JETSCAPE Collaboration meeting, Wayne State University, Nov. 27, 2016

43. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
Invited talk given at the RIKEN/Nuclear BNL lunch seminar, Brookhaven National Lab, Oct. 2016

44. “Electromagnetic radiation and collectivity in small quark-gluon droplets”
Selected parallel talk at the 8th international conference on hard and electromagnetic probes of high-energy nuclear collisions Hard Probes 2016, Wuhan, China, Sept. 2016

45. “Building the Standard Model for Relativistic Heavy-ion Collisions”
Invited talk given at ULtra-RelativistiCH Heavy IoNZ 2016, CERN, Geneva, Switzerland, July 2016

46. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”

Invited talk given at the 2016 RHIC & AGS Annual Users' Meeting, Brookhaven National Lab, June 2016

47. "Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies"
Invited talk given at the BEST collaboration meeting, Indiana University, Bloomington, USA, May 2016

48. "The standard model for relativistic heavy-ion collisions and electromagnetic tomography"
Invited talk given at the INT for postdoc interview, Jan. 2015

49. "The standard model for relativistic heavy-ion collisions and electromagnetic tomography"
Invited talk given at the award section in APS DNP Meeting 2015, Santa Fe, USA, Oct. 2015

50. "The standard model for relativistic heavy-ion collisions and electromagnetic tomography"
Invited Nuclear Physics Seminar, Shanghai Jiao Tong University, China, Oct. 2015

51. "Theory Overview of Electromagnetic Radiation from QCD Matter"
Invited plenary talk at the 25th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2015, Kobe, Japan, Oct 2015

52. "Recent developments in the theory of electromagnetic probes in relativistic heavy-ion collisions"
Invited plenary talk at Second conference on heavy ion collisions in the LHC era and beyond, Quy Nhon, Vietnam, July 2015

53. "MUSIC with diffusion"
Invited plenary talk at Second conference on heavy ion collisions in the LHC era and beyond, Quy Nhon, Vietnam, July 2015

54. "Recent developments in the theory of electromagnetic probes in relativistic heavy-ion collisions"
Invited plenary talk at the 7th international conference on hard and electromagnetic probes of high-energy nuclear collisions Hard Probes 2015, McGill University, Canada, June 2015

55. "iEBE hydro for JET"
JET Sympoium, McGill University, Canada, June 2015

56. “MUSIC with diffusion”
Invited Nuclear Physics Seminar, The Ohio State University, USA, Mar 2015

57. “The iEBE package”
JET EVO Meeting, Oct 2014

58. “The standard model for relativistic heavy-ion collisions and electromagnetic tomography”
McGill Welcome Seminar, McGill University, Canada, Oct 2014

59. “Photon tomography of relativistic heavy-ion collisions”
Riken BNL Research Center Workshop — Thermal photon and Dilepton in Heavy-Ion Collisions, Brookhaven National Lab USA, Aug 2014

60. “The iEBE package”
Workshop on Toward Quantitative Conclusions for Heavy-Ion Collisions, Michigan State University, USA, July 2014

61. “Viscous corrections to photon emission in heavy-ion collisions”
Selected parallel talk at the 24th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2014, Darmstadt, Germany, May 2014

62. “Photon emission from viscous hydrodynamics in relativistic heavy-ion collisions”,
EMMI Rapid Reaction Task Force, GSI Darmstadt, Germany, Feb. 2014

63. “Viscous hydrodynamics in heavy-ion collisions from RHIC to LHC”
Invited Nuclear Physics Seminar, LBNL, Berkeley, USA , Jan. 2014

64. “Anisotropic flow of thermal photons as a quark-gluon plasma viscometer”
Selected parallel talk at the 6th international conference on hard and electro-magnetic probes of high-energy nuclear collisions Hard Probes 2013, Stellenboch, South Africa, Nov. 2013

65. “Improved Sampling Procedure in iEBE-VISHNU”
Sampling Workshop 2013, Frankfurt, Germany, July 2013

66. “Event-by-event viscous photon emission in relativistic heavy-ion collisions”
Invited Nuclear Physics Seminar, McGill University, Canada, June 2013

67. “Viscous Hydrodynamic flows in Heavy-Ion Collisions from RHIC to LHC”
Invited Nuclear Physics Seminar, McGill University, Canada, Nov. 2012

68. “Hydrodynamic flows from RHIC to LHC”
Invited Nuclear Physics Seminar, University of Illinois at Chicago, Oct. 2012

69. “Collision energy dependence of hydrodynamic flow in relativistic heavy-ion collisions”
Invited Nuclear Physics Seminar, High-Energy Nuclear Physics in China EVO, Sept. 2012

70. “Collision energy dependence of hydrodynamic flow in relativistic heavy-ion collisions”
Selected parallel talk at the 23th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2012, Washington DC, USA, Aug. 2012

71. “Hydrodynamic flow from RHIC to LHC”
Invited Nuclear Physics Seminar, McGill University, Canada, Feb. 2012

72. “Viscous hydrodynamic radial and elliptic flow from RHIC to LHC”
Invited Nuclear Physics Seminar, McGill University, Canada, Jun. 2011

73. “The QGP shear viscosity - elusive goal or just around the corner?”
Selected parallel talk at the 22th international conference on ultrarelativistic nucleus-nucleus collisions Quark Matter 2011, Annecy France, May 2011

74. “Viscous hydrodynamic radial and elliptic flow from RHIC to LHC”
Invited Nuclear Physics Seminar, Brookhaven National Laboratory, USA, Mar. 2011

75. “Viscous hydrodynamic radial and elliptic flow from RHIC to LHC”
Invited Nuclear Physics Seminar, The Ohio State University, USA, Jan. 2011

Contributed talks

76. “Hybrid approach to relativistic heavy-ion collisions at the RHIC BES energies”
The BEST collaboration hydro group meeting, online talk through Blue Jeans, Sept 2016

77. “Study the collectivity and electromagnetic emissivity in a small quark-gluon droplet”
Selected talk in CAP Congress Meeting, University of Ottawa, Ottawa, Canada, June, 2016

78. “MUSIC with diffusion”
Riken BNL Research Center Workshop — Theory and Modeling for the Beam Energy Scan: from Exploration to Discovery, Brookhaven National Lab, USA, Feb 2015

79. “Thermal photon emission in relativistic heavy-ion collisions”
JET Summer School, UC Davis, USA, June 2014

80. “The iEBE package”
JET Collaboration Meeting, UC Davis, USA, June 2014

81. “Thermal photons as a quark-gluon plasma thermo-meter revisited”
Critical Mass Meeting, University of Toledo, USA, Mar. 2014

82. “Photon emission from a nearly equilibrated medium n relativistic heavy-ion collisions”
JET Bulk Meeting, JET EVO meeting, Oct. 2013

83. “Thermal photons as a quark-gluon plasma thermometer?”
Midwest Theory Get Together, Argonne National Laboratory, USA, Sept. 2013

84. “Hydro-EM radiation interface”
JET Collaboration Meeting, The Ohio State University, USA, June 2013

85. “Photon emission from a nearly equilibrated medium in relativistic heavy-ion collisions”
Selected talk given at APS meeting Ohio Section, Ohio University, USA, Mar. 2013

86. “Photon emission from a nearly equilibrated medium in relativistic heavy-ion collisions”
JET Bulk Meeting, JET EVO meeting, Mar. 2013

87. “Thermal photon emission with partial chemical equilibrium equation of state”
Midwest Theory Get Together, Argonne National Laboratory, USA Sept. 2012

88. “Hydrodynamic flow from RHIC to LHC”
National Nuclear Physics Summer School, Santa Fe, USA, July 2012

89. “Hydrodynamic flow from RHIC to LHC”
Selected talk given at Hayes Research Form, The Ohio State University, USA, Feb. 2012

90. “(2+1)-d vs. (3+1)-d viscous hydrodynamics from RHIC to LHC”

APS DNP Fall Meeting 2011, Michigan State University, USA, Oct. 2011

91. "Viscous elliptic and triangular flow at LHC"
Midwest Theory Get Together, Argonne National Laboratory, USA, Sept. 2011

92. "Viscous hydrodynamic radial and elliptic flow from RHIC to LHC"
APS April Meeting 2011, Anaheim, USA, Apr. 2011

93. "Systematic parameter study in viscous hydrodynamics"
Midwest Critical Mass 2010, University of Toledo, USA, Oct. 2010

94. "Hydrodynamic flow in heavy-ion collisions with large hadronic viscosity"
Midwest Theory Get Together, Argonne National Laboratory, USA, Sept. 2010

Poster presentations

95. "The shining quark-gluon plasma"
Graduate Research Poster competition, The Ohio State University, USA, Feb. 2013

96. "Thermal photon emission with PCE equation of state"
Quark Matter 2012, Washington DC, USA, Aug. 2012

97. "Viscous hydrodynamic elliptic flow from RHIC to LHC"
Quark Matter 2011, Annecy, France, May 2011

98. "Viscous hydrodynamic elliptic flow from RHIC to LHC"
Graduate Research Poster competition, The Ohio State University, USA, May 2011

SCIENTIFIC PUBLIC BROADCAST

Movie posted on Youtube

- Charged hadrons vs thermal photons production in relativistic heavy-ion collisions
http://youtu.be/oMFboC7O1DU

- Hydrodynamic simulations of relativistic heavy ion collisions at RHIC and LHC
http://www.youtube.com/watch?feature=player_detailpage&v=G18pyVOmSRw

- Viscous hydrodynamics from RHIC to LHC energies
http://www.youtube.com/watch?feature=player_detailpage&v=DU2KTiPOEA4