Shengquan Tuo

Curriculum Vitae updated March 2024

Contact Information

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Research Interests

Overall: Relativistic Heavy Ion Collisions, both Theory and Experiment
Specifically: R_{pA}, R_{AA}, Centrality in pA and AA, Flow and Correlations in pA and AA Collisions

Appointment

2021 - present Research Assistant Professor of Physics and Astronomy, Vanderbilt University
2015 - 2021 Postdoctoral Research Associate, Vanderbilt University
2011 - 2015 Research Assistant, Vanderbilt University
2009 - 2010 Teaching Assistant, Vanderbilt University

Education

2009 - 2015 Ph.D. in Physics, Vanderbilt University
2005 - 2009 B.S. in Physics, University of Science and Technology of China

Experience

Convener for the CMS Collaboration Flow and Correlation Group (2022 - present)
Trigger Contact Person of CMS Collaboration Flow and Correlation Group (2018 - present)
Site Administration and Data Manager of T2_US_Vanderbilt (at ACCRE) (2015 - present)
Contact Person for the CMS Collaboration Global Observable Group (2012 - 2017)

Selected Publications

Two-particle azimuthal correlations in γp interactions using pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Lett. B 844, 137905 (2023)

Strange hadron collectivity in pPb and PbPb collisions, A. M. Tumasyan, et al. (CMS Collaboration), JHEP 05, 007 (2023)

Probing charm quark dynamics via multiparticle correlations in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, A. M. Tumasyan, et al. (CMS Collaboration), Phys. Rev. Lett. 129, 022001 (2022)

Studies of charm and beauty hadron long-range correlations in pp and pPb collisions at LHC energies, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Lett. B 813, 136036 (2021)

Correlations of azimuthal anisotropy Fourier harmonics with subevent cumulants in pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. C 103, 014902 (2021)

Strange hadron production in pp and pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. C 101, 064906 (2020)

Mixed higher-order anisotropic flow and nonlinear response coefficients of charged particles in PbPb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV, A. M. Sirunyan, et al. (CMS Collaboration), Eur. Phys. J. C 80, 534 (2020)

Multiparticle correlation studies in pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. C 101, 014912 (2020)

Pseudorapidity distributions of charged hadrons in xenon-xenon collisions at $\sqrt{s_{NN}} = 5.44$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Lett. B 799, 135049 (2019)

Charged-particle angular correlations in XeXe collisions at $\sqrt{s_{NN}} = 5.44$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. C 100, 044902 (2019)

Charged-particle nuclear modification factors in XeXe collisions at $\sqrt{s_{NN}} = 5.44$ TeV, A. M. Sirunyan, et al. (CMS Collaboration), JHEP 10, 138 (2018)

Pseudorapidity and transverse momentum dependence of flow harmonics in pPb and PbPb collisions, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. C 98, 044902 (2018)

Observation of correlated azimuthal anisotropy Fourier harmonics in pp and pPb collisions at the LHC, A. M. Sirunyan, et al. (CMS Collaboration), Phys. Rev. Lett. 120, 092301 (2018)

Charged-particle nuclear modification factors in PbPb and pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, V. Khachatryan, et al. (CMS Collaboration), JHEP 04, 039 (2017)

Evidence for collectivity in pp collisions at the LHC, V. Khachatryan, et al. (CMS Collaboration), Phys. Lett. B 765, 193 (2017)

Measurement of inclusive jet production and nuclear modifications in pPb collisions at $\sqrt{s_{NN}} =$ 5.02 TeV, V. Khachatryan, et al. (CMS Collaboration), Eur. Phys. J. C 76, 372 (2016)

Evidence for transverse momentum and pseudorapidity dependent event plane fluctuations in PbPb and pPb collisions, V. Khachatryan, et al. (CMS Collaboration), Phys. Rev. C 92, 034911 (2015)

Evidence for Collective Multiparticle Correlations in pPb Collisions, V. Khachatryan, et al. (CMS Collaboration), Phys. Rev. Lett. 115, 012301 (2015)

Nuclear effects on the transverse momentum spectra of charged particles in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, V. Khachatryan, et al.(CMS Collaboration), Eur. Phys. J. C 75, 237 (2015)

Event activity dependence of $\Upsilon(nS)$ production in $\sqrt{s_{NN}} = 5.02$ TeV pPb and $\sqrt{s} = 2.76$ TeV pp collisions, S. Chatrchyan, et al. (CMS Collaboration), JHEP 04, 103 (2014)

Measurement of higher-order harmonic azimuthal anisotropy in PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, S. Chatrchyan, et al. (CMS Collaboration), Phys. Rev. C 89, 044906 (2014)

Studies of azimuthal dihadron correlations in ultra-central PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, S. Chatrchyan, et al. (CMS Collaboration), JHEP 02, 088 (2014)

Multiplicity and transverse momentum dependence of two- and four-particle correlations in pPb and PbPb collisions, S. Chatrchyan, (CMS Collaboration), Phys. Lett. B 724, 213 (2013)

Observation of long-range near-side angular correlations in proton-lead collisions at the LHC, S. Chatrchyan, (CMS Collaboration), Phys. Lett. B 718, 795 (2013)

Measurement of the elliptic anisotropy of charged particles produced in PbPb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV, S. Chatrchyan, et al. (CMS Collaboration), Phys. Rev. C 87, 014902 (2013)

Measurement of the azimuthal anisotropy of neutral pions in PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, S. Chatrchyan, et al. (CMS Collaboration), Phys. Rev. Lett. 110, 042301 (2013)

Conferences

Net-charge fluctuations and balance functions with the CMS experiments, Quark Matter 2023, September 3-9, 2023, Houston, Texas, United States

Flow, nonflow, and flow fluctuations at CMS, Seminar for India+ lectures on Heavy Ion Collision experiments, February 23, 2023, Online

Recent results on collectivity in small collision systems, 14th Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2022), August 29-September 4, 2022, Lake Buena Vista, Florida, United States

Flow measurements in heavy ion collisions with CMS, 41st International Conference on High Energy Physics (ICHEP 2022), July 6-13, 2022, Bologna, Italy

Centrality bias study for charged-particle nuclear modification factor in pPb and PbPb collisions using the ANGANTYR model at $\sqrt{s_{NN}} = 5.02$ TeV (By Robert Pierrard and Shengquan Tuo), APS April Meeting 2022, April 9-12, 2022, New York

Correlations between multiparticle cumulants and mean transverse momentum in small collision

systems with the CMS detector, Quark Matter 2022, April 4-10, 2022, Krakow, Poland

Angular Power Spectrum in Heavy Ion Collisions from Simulations (By Hannah Anderson and Shengquan Tuo), APS April Meeting 2021, April 17-20, 2021, Virtual

Experimental approaches to flow and nonflow in small systems (Invited talk), 9th Workshop of the APS Topical Group on Hadronic Physics, April 13-16, 2021, Virtual

Multiparticle correlations from the direct calculation of cumulants using particle azimuthal angles (Poster), Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions, November 4-9, 2019, Wuhan, China

Multiparticle correlations from the direct calculation of cumulants using particle azimuthal angles, 2019 Fall Meeting of the Division of Nuclear Physics of the American Physical Society, October 14-17. 2019, Arlington (VA), United States

Measurement of elliptic and triangular flow with multiparticle correlations in pPb collisions at 8.16 TeV, Initial Stages 2019 (IS2019), June 24-28, 2019, Columbia University, New York City, United States

Measurement of charged particle mixed higher order flow harmonics and nonlinear response coefficients in PbPb collisions, April meeting of the American Physical Society, April 14-17, 2018, Columbus, Ohio, United States

Mixed higher-order flow harmonics and nonlinear response coefficients in PbPb collisions at 2.76 and 5.02 TeV with CMS, Quark Matter 2017, February 5-11, 2017, Hyatt Regency Chicago, Illinois, United States

Correlations and Fluctuations in Small Systems from LHC, 2016 RHIC & AGS Annual Users' Meeting, RHIC Upgrades and the era of Femtobarn^{-1} Precision, June 7-10, 2016, Brookhaven National Laboratory Upton, NY, United States

Flow analysis methods in small multiplicity events, Workshop on Correlations and Fluctuations in p+A and A+A Collisions, July 6-31, 2015, Seattle, WA, United States

Flow measurements in pPb collisions at CMS, Moriond/QCD: 50th Rencontres de Moriond on "QCD and High Energy Interactions", March 21-28, 2015, La Thuile, Italy

Study of collective phenomena in pPb collisions by the CMS experiment, WPCF 2014, August 25-29, 2014, Karoly Robert College, Gyongyos, Hungary

Latest CMS results on flow in pPb and PbPb, WWND2014, April 6-12, 2014, Galveston, TX, United States

pPb centrality with CMS, pACentrality2014, February 14, 2014, CERN, Geneva, Switzerland

Centrality determination in pPb collisions with CMS, IS2013, September 8-14, 2013, Galicia, Spain

Correlations and flow measurements in pPb collisions with CMS, Workshop on proton-nucleus collisions at the LHC, May 6-10, 2013, Trento, Italy

Studies of higher-order flow harmonics and factorization of dihadron correlations in PbPb collisions at 2.76 TeV with CMS, Quark Matter 2012, August 13-18, 2012, Washington, D.C., United States

Higher order flow harmonics from 2.76 TeV PbPb collisions measured by CMS, April meeting of the American Physical Society, March 31-April 3, 2012, Atlanta, GA, United States

Elliptic flow measurement in $\sqrt{s_{NN}}$ = 2.76 TeV Pb+Pb collisions with the Lee-Yang Zeros method, April meeting of the American Physical Society, April 30-May 3, 2011, Anaheim, CA, United States