

Amaresh Jaiswal

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National Institute of Science Education and Research
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Date of Birth: March 01, 1985
Nationality: Indian
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Positions Held

- April 2017 - Present: *Assistant Professor*, School of Physical Sciences, National Institute of Science Education and Research (NISER), Jatni, India.
- October 2014 - April 2017: *Post-doctoral Fellow*, Theory Division, GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany.
- March 2014 - September 2014: *Visiting Fellow*, Tata Institute of Fundamental Research (TIFR), Mumbai, India.

Education

- April 2010 - February 2014: *Doctor of Philosophy*, Tata Institute of Fundamental Research, Mumbai, India.
- July 2008 - March 2010: *Master of Science*, Tata Institute of Fundamental Research, Mumbai, India.
- July 2003 - August 2007: *Bachelor of Technology*, Visvesvaraya National Institute of Technology, Nagpur, India.

Short Term Research Visits

- September 24, 2017 - September 30, 2017; December 3, 2017 - December 19, 2017: EMMI Visiting Researcher, GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany.
- July 12, 2017 - July 22, 2017: Indian Institute of Technology (IIT) Gandhinagar, India.
- March 12, 2017 - March 19, 2017: Istituto Nazionale di Fisica Nucleare (INFN) - Laboratori Nazionali del Sud, Catania, Italy.
- March 22, 2015 - April 1, 2015: The Henryk Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland.
- May 5, 2014 - May 10, 2014: Saha Institute of Nuclear Physics (SINP), Kolkata, India.
- July 2, 2012 - July 7, 2012; January 12, 2014 - January 16, 2014; February 3, 2016 - February 7, 2016; May 29, 2017 - May 31, 2017: Variable Energy Cyclotron Centre (VECC), Kolkata, India.

Fellowships and Awards

- INSPIRE Faculty Award from Department of Science & Technology, India (2017).
- Post-doctoral research fellowship from GSI Darmstadt, Germany (2016-2017).
- Post-doctoral research fellowship from Frankfurt Institute for Advanced Studies at the Goethe-University Frankfurt am Main, Germany (2014-2016).
- TIFR Alumni Association – Geeta Udgaonkar Award for Best Ph.D. Thesis (2014-2015).
- Honourable Mention in Rahul Basu Memorial Award for Best Ph.D. Thesis in High Energy Physics (2014).
- Ph.D. research scholarship from Tata Institute of Fundamental Research (TIFR), Mumbai, India (2008-2014).

Scientific Reviewer of

- Physical Review C, D, E.
- Journal of Physics G.
- European Physical Journal A.

Other Roles

- Seminar and colloquium organization at NISER.
- Involved in DESY documentation, as part of the INSPIRE-HEP collaboration.

Research Interests

- Theoretical High Energy Physics:
 - Relativistic dissipative fluid dynamics.
 - Kinetic Theory and transport models.
- General relativity and AdS/CFT correspondence.

Current Areas of Research

- Theoretical formulation of Causal Relativistic Dissipative Fluid-dynamics from kinetic theory.
- Lagrangian formulation of dissipative fluid dynamics.
- Numerical implementation of viscous fluid dynamics to study the observables associated with high-energy scattering.
- Generalization of the blast wave model to capture key features of viscous hydrodynamic evolution.
- Virtual photon polarization and dilepton anisotropy.
- Relativistic dissipative fluid dynamics with spin.

Seminars and Colloquia

- “*Hydrodynamics of vortical and polarized fluids*”, Initial Stages, September 21, 2017, Polish Academy of Arts and Sciences, Kraków, Poland.
- “*Effect of anisotropic escape mechanism on elliptic flow in relativistic heavy-ion collisions*”, DNAP Seminar, July 19, 2017, Tata Institute of Fundamental Research, Mumbai, India.
- “*Relativistic dissipative hydrodynamics from kinetic theory*”, Theory Colloquium, July 13, 2017, Indian Institute of Technology, Gandhinagar, India.
- “*Formulation of relativistic dissipative hydrodynamics from kinetic theory*”, Theory Group Seminar, May 30, 2017, Variable Energy Cyclotron Center, Kolkata, India.
- “*Relativistic dissipative hydrodynamics from kinetic theory: formulations and applications*”, Theory Group Seminar, March 16, 2017, INFN - Laboratori Nazionali Del Sud, Catania, Italy.
- “*Theory summary of Quark Matter 2017*”, EMMI NQM Seminar, February 16, 2017, GSI Darmstadt, Germany.
- “*Relativistic dissipative hydrodynamics from kinetic theory in the relaxation-time approximation*”, MITP Workshop on Relativistic Hydrodynamics: Theory and Modern Applications, October 11, 2016, Mainz Institute of Theoretical Physics, Mainz, Germany.
- “*Relativistic dissipative hydrodynamics from kinetic theory: formulations and applications*”, Theory Seminar, July 26, 2016, University of Heidelberg, Germany.
- “*A viscous blast-wave model for heavy-ion collisions*”, Strangeness in Quark Matter 2016, June 27–July 1, 2016, University of California at Berkeley, USA.
- “*A viscous blast-wave model for relativistic heavy-ion collisions*”, Physics Group Seminar, February 4, 2016, Variable Energy Cyclotron Center, Kolkata, India.
- “*Baryon diffusion and heat conductivity in QGP*”, EMMI Workshop: Fluctuations in Strongly Interacting Hot and Dense Matter: Theory and Experiment, November 2–6, 2015, GSI Darmstadt, Germany.
- “*A viscous blast-wave model for high energy heavy-ion collisions*”, XLV International Symposium on Multiparticle Dynamics, October 4–9, 2015, Wildbad Kreuth, Germany.
- “*Relativistic dissipative hydrodynamics from kinetic theory*”, EMMI NQM Seminar, September 9, 2015, GSI, Darmstadt, Germany.
- “*Relativistic viscous hydrodynamics from kinetic theory: formulation and application*”, Theory Seminar, March 30, 2015, The H. Niewodniczański Institute of Nuclear Physics, Polish Academy of Sciences, Kraków, Poland.
- “*Aspects of a causal theory of relativistic viscous hydrodynamics*”, Physics Seminar, March 27, 2015, AGH University of Science and Technology, Kraków, Poland.
- “*Formulation of relativistic dissipative fluid dynamics from kinetic theory*”, GSI Theory Seminar, November 4, 2014, GSI, Darmstadt, Germany.
- “*Relaxation-time approximation and relativistic viscous hydrodynamics from kinetic theory*”, Flash Talk, Quark Matter 2014 - XXIV International Conference on Ultra-relativistic Nucleus-Nucleus Collisions, May 19–24, 2014, Darmstadt, Germany.

- “*New developments in the formulation of relativistic dissipative fluid dynamics*”, Theory Division Seminar, May 6, 2014, Saha Institute of Nuclear Physics, Kolkata, India.
- “*Relativistic third-order viscous hydrodynamics from kinetic theory*”, International Conference on Matter at Extreme Conditions : Then & Now, January 15-17, 2014, Bose Institute, Kolkata, India.
- “*Boltzmann H-theorem and relativistic dissipative hydrodynamics*”, DAE Symposium on Nuclear Physics 2013, December 2–6, 2013, Bhabha Atomic Research Centre, Mumbai, India.
- “*Quark-Gluon Plasma: A Bubble-Free Liquid*”, The 31st Young Physicists’ Colloquium, August 23, 2013, Saha Institute of Nuclear Physics, Kolkata, India.
- “*Relativistic Dissipative Fluid Dynamics and Kinetic Theory*”, Physics Group Seminar, December 12, 2012, Variable Energy Cyclotron Center, Kolkata, India.
- “*New derivation of relativistic dissipative fluid dynamics*”, DAE Symposium on Nuclear Physics 2012, December 3–7, 2012, University of Delhi, Delhi, India.
- “*Relativistic Kinetic Theory and Dissipative Hydrodynamics*”, Nuclear Physics Group Seminar, October 15, 2012, Tata Institute of Fundamental Research, Mumbai, India.
- “*Relativistic hydrodynamics from Boltzmann equation with modified collision term*”, QGP Meet 2012, July 3–6, 2012, Variable Energy Cyclotron Center, Kolkata, India.
- “*Relativistic Third-Order Dissipative Hydrodynamics from Kinetic Theory*”, Free Meson Seminar, November 25, 2011, Tata Institute of Fundamental Research, Mumbai, India.

Publication and Citation Highlights

- Preprints: 6
- Refereed Articles: 14
- Conference proceedings: 9
- Total citations: > 400
- Number of 50⁺ cited papers: 3
- Hirsch-Index: 12
- Source: <http://inspirehep.net/author/profile/Amaresh.Jaiswal.1>

List of Publications

Preprints:

1. Wojciech Florkowski, Bengt Friman, [Amaresh Jaiswal](#), Radoslaw Ryblewski and Enrico Speranza, “*Spin-dependent distribution functions for relativistic hydrodynamics of spin-1/2 particles*”, [arXiv:1712.07676].
2. [Amaresh Jaiswal](#) and Partha Pratim Bhaduri, “*Effect of anisotropic escape mechanism on elliptic flow in relativistic heavy-ion collisions*”, [arXiv:1712.02707].
3. Ashutosh Dash and [Amaresh Jaiswal](#), “*Metric anisotropies and emergent anisotropic hydrodynamics*”, [arXiv:1711.07130].
4. Wojciech Florkowski, Bengt Friman, [Amaresh Jaiswal](#) and Enrico Speranza, “*Relativistic fluid dynamics with spin*”, [arXiv:1705.00587].
5. [Amaresh Jaiswal](#), Bengt Friman and Krzysztof Redlich, “*Weak and strong coupling limits of the Boltzmann equation in the relaxation-time approximation*”, [arXiv:1602.05424].
6. [Amaresh Jaiswal](#) and Volker Koch, “*A viscous blast-wave model for relativistic heavy-ion collisions*”, [arXiv:1508.05878].

Publications in Refereed Journals:

1. Leonardo Tinti, [Amaresh Jaiswal](#) and Radoslaw Ryblewski, “*Quasiparticle second-order viscous hydrodynamics from kinetic theory*”, **Phys. Rev. D** **95**, 054007 (2017), [arXiv:1612.07329].
2. [Amaresh Jaiswal](#) and Victor Roy, “*Relativistic hydrodynamics in heavy-ion collisions: general aspects and recent developments*”, **Adv. High Energy Phys.** **2016**, 9623034 (2016), [arXiv:1605.08694].
3. [Amaresh Jaiswal](#), Bengt Friman and Krzysztof Redlich, “*Relativistic second-order dissipative hydrodynamics at finite chemical potential*”, **Phys. Lett. B** **751**, 548 (2015), [arXiv:1507.02849].
4. Rajeev S. Bhalerao, [Amaresh Jaiswal](#), and Subrata Pal, “*Collective flow in event-by-event partonic transport plus hydrodynamics hybrid approach*”, **Phys. Rev. C** **92**, 014903 (2015), [arXiv:1503.03862].
5. Wojciech Florkowski, [Amaresh Jaiswal](#), Ewa Maksymiuk, Radoslaw Ryblewski, and Michael Strickland, “*Relativistic quantum transport coefficients for second-order viscous hydrodynamics*”, **Phys. Rev. C** **91**, 054907 (2015) [arXiv:1503.03226].
6. Chandrodoy Chattopadhyay, [Amaresh Jaiswal](#), Subrata Pal, and Radoslaw Ryblewski, “*Relativistic third-order viscous corrections to the entropy four-current from kinetic theory*”, **Phys. Rev. C** **91**, 024917 (2015) [arXiv:1411.2363].
7. [Amaresh Jaiswal](#), Radoslaw Ryblewski, and Michael Strickland, “*Transport coefficients for bulk viscous evolution in the relaxation time approximation*”, **Phys. Rev. C** **90**, 044908 (2014) [arXiv:1407.0837].
8. [Amaresh Jaiswal](#), “*Relaxation-time approximation and relativistic viscous hydrodynamics from kinetic theory*”, **Nucl. Phys. A** **931**, 1205 (2014) [arXiv:1407.0837].

9. Rajeev S. Bhalerao, Amaresh Jaiswal, Subrata Pal, and V. Sreekanth, “*Relativistic viscous hydrodynamics for heavy-ion collisions: A comparison between Chapman-Enskog and Grad’s methods*”, **Phys. Rev. C** **89**, 054903 (2014) [arXiv:1312.1864].
10. Rajeev S. Bhalerao, Amaresh Jaiswal, Subrata Pal, and V. Sreekanth, “*Particle production in relativistic heavy-ion collisions: A consistent hydrodynamic approach*”, **Phys. Rev. C** **88**, 044911 (2013) [arXiv:1305.4146].
11. Amaresh Jaiswal, “*Relativistic third-order dissipative fluid dynamics from kinetic theory*”, **Phys. Rev. C** **88**, 021903(R) (2013) [arXiv:1305.3480].
12. Amaresh Jaiswal, “*Relativistic dissipative hydrodynamics from kinetic theory with relaxation-time approximation*”, **Phys. Rev. C** **87**, 051901(R) (2013) [arXiv:1302.6311].
13. Amaresh Jaiswal, Rajeev S. Bhalerao, and Subrata Pal, “*Complete relativistic second-order dissipative hydrodynamics from the entropy principle*”, **Phys. Rev. C** **87**, 021901(R) (2013) [arXiv:1302.0666].
14. Amaresh Jaiswal, Rajeev S. Bhalerao, and Subrata Pal, “*New relativistic dissipative fluid dynamics from kinetic theory*”, **Phys. Lett. B** **720**, 347 (2013) [arXiv:1204.3779].

Conference Proceedings:

1. Wojciech Florkowski, Bengt Friman, Amaresh Jaiswal and Enrico Speranza, “*Relativistic hydrodynamics of particles with spin 1/2*”, **Acta Phys. Polon. Supp.** **10**, 1139 (2017) [arXiv:1708.04035].
2. Amaresh Jaiswal and Volker Koch, “*A viscous blast-wave model for heavy-ion collisions*”, **J. Phys. Conf. Ser.** **779**, 012065 (2017).
3. Amaresh Jaiswal and Volker Koch, “*A viscous blast-wave model for high energy heavy-ion collisions*”, **EPJ Web Conf.** **120**, 06001 (2016).
4. Amaresh Jaiswal, Bengt Friman and Krzysztof Redlich, “*Relativistic second-order dissipative fluid dynamics at finite chemical potential*”, **EPJ Web Conf.** **120**, 03008 (2016).
5. Amaresh Jaiswal, “*Relativistic third-order viscous hydrodynamics*”, **Proceedings of the Indian National Science Academy** **81 No. 1** (2015) pp. 62-69.
6. Amaresh Jaiswal, Rajeev S. Bhalerao, and Subrata Pal, “*Boltzmann H-theorem and relativistic second-order dissipative hydrodynamics*”, **Proceedings of the DAE Symp. on Nucl. Phys.** **58** (2013) pp. 684-685.
7. Amaresh Jaiswal, Rajeev S. Bhalerao, and Subrata Pal, “*New derivation of relativistic dissipative fluid dynamics*”, **Proceedings of the DAE Symp. on Nucl. Phys.** **57** (2012) pp. 760-761.
8. Amaresh Jaiswal, Rajeev S. Bhalerao, and Subrata Pal, “*Relativistic hydrodynamics from Boltzmann equation with modified collision term*”, **Proceedings of the QGP Meet 2012**, Narosa Publication, New Delhi, India [arXiv:1303.1892].
9. Amaresh Jaiswal, Rajeev S. Bhalerao and Subrata Pal, “*Boltzmann equation with a non-local collision term and the resultant dissipative fluid dynamics*”, **J. Phys. Conf. Ser.** **422**, 012003 (2013) [arXiv:1210.8427].