



Shahriyar Jafarzade

Institute of Physics
Jan Kochanowski University of Kielce
ul.Uniwersytecka 7, P-25-406, Kielce
shahriyar.jzade@gmail.com

Personal Data

Date of Birth: 18 April 1994
Birth place: Salyan, Azerbaijan
Citizenship: Azerbaijan Republic

Education

10/2019-08/2023 **Graduate Student**
Institute of Physics, Jan Kochanowski University of Kielce, Poland
09/2017-09/2019 **Master Student**
Physics department of MSFA University, Istanbul, Turkey
09/2015-08/2016 **Postgraduate Student**
ICTP (International Center for Theoretical Physics), Trieste, Italy
09/2011-06/2015 **Bachelor of Physics**
Baku State University, Baku, Azerbaijan
2007-2009 **High school**
Physics, Mathematical and Informatics Lyceum, Baku, Azerbaijan

Internships

09-10/2022	Doctoral Internship Brookhaven National Laboratory, New York , USA
06/2016–08/2016	Postgraduate Student High Energy, Cosmology and Astroparticle Physics group, ICTP (Abdus Salam International Center for Theoretical Physics), Trieste, Italy
06/2015–08/2015	Summer Student Researcher CMS group, CERN, Geneva, Switzerland

Visitor

15-29/10/2021	Visitor SISSA, Trieste, Italy
03/2020	Visitor Galileo Galilei Institute, Florence, Italy
11/2018	Visitor Simons Center for Geometry and Physics, State University of New York, Stony Brook, United States of America
06/2017	Visitor Max-Planck-Institut for Gravitationsphysik, Albert-Einstein-Institute, Potsdam, Germany
07/2016	Visitor Max-Planck-Institut for Gravitationsphysik, Albert-Einstein-Institute, Potsdam, Germany

Publications and Preprints

1. ‘The role of pomeron states in the Glueball Resonance Gas’, [arXiv: 2310.09606, Enrico Trotti and Shahriyar Jafarzade]
2. ‘Three-body decays of $\pi_2(1670)$ and $\rho_3(1690)$ via the Sill distribution’, [arXiv: 2309.16740, Shahriyar Jafarzade and Enrico Trotti]
3. ‘Anomalous interactions for heterochiral mesons with $J^{PC} = 1^{+-}$ and 2^{-+} ’, [arXiv: 2309.00086, Francesco Giacosa, Shahriyar Jafarzade, and Robert Pisarski]
4. ‘Tensor meson couplings in AdS/QCD’, [arXiv: 2308.12392, accepted to Phys.Rev.D, Shahin Mamedov, Zeynab Hashimli, and Shahriyar Jafarzade]
5. ‘Is $f_2(1950)$ the tensor glueball?’, [Phys.Rev.D 108(2023), 014023 , Arthur Vereijken, Shahriyar Jafarzade, Milena Piotrowska, and Francesco Giacosa]
6. ‘Thermodynamics of the glueball resonance gas’, [Eur.Phys.J.C 83 (2023) 5, 390, Enrico Trotti, Shahriyar Jafarzade, and Francesco Giacosa]
7. ‘The Phenomenological note on the missing ρ_2 ’ [PoS ICHEP2022 (2022) 903, Shahriyar Jafarzade]
8. ‘From well-known tensor mesons to yet unknown axial-tensor mesons’ , [Phys.Rev.D 106(2022)3, 036008, Shahriyar Jafarzade, Arthur Vereijken, Milena Piotrowska, and Francesco Giacosa]

9. “Phenomenology of $J^{PC} = 3^{--}$ tensor mesons” [Phys.Rev.D 103 (2021), 096027, Shahriyar Jafarzade, Adrian Koenigstein, and Francesco Giacosa]
10. “Gamma function solutions to the star-triangle equation” [Nuclear Physics B Vol.963, Feb (2021),115283, Ege Eren, Ilmar Gahramanov, Shahriyar Jafarzade, and Gonenc Mogol]
11. “New Pentagon Identities Revisited” [J.Phys.Conf.Ser. 1194 (2019), Shahriyar Jafarzade]
12. “Comments on the multi-spin solution to the Yang-Baxter equation and basic hypergeometric sum/integral identity” [Modern Physics Letters A Vol. 33, No. 1 (2019) 1950140, Ilmar Gahramanov, and Shahriyar Jafarzade]
13. “Integrable lattice spin models from supersymmetric dualities” [Phys. Part. Nuclei Lett. (2018) 15, Ilmar Gahramanov, and Shahriyar Jafarzade]
14. “ A New Integrable Ising-type Model from 2d $\mathcal{N} = (2,2)$ Dualities” [(arXiv: 1709.00070), Shahriyar Jafarzade, and Zainab Nazari]
15. “Analytical Solutions of the Schrodinger Equation for the Hulthen Potential within SUSY Quantum Mechanics” [Int. J. Mod. Phys. A30 (2015) 32, H.I. Ahmadov, Sh.I. Jafarzade, M.V. Qocayeva]

Work in Progress, to appear shortly

1. “Scattering of the scalar fields are not trivial after all”, arXiv:2311.xxxxx, with A.Vereijken, F. Giacosa, and Leonardo Tinti
2. “Ordinary and exotic mesons in the extended Linear Sigma Model”, arXiv:2404.xxxxx, with F. Giacosa, and Péter Kovács

Referrals

- Francesco Giacosa (Phd supervisor)
Institute of Physics, Jan Kochanowski University,
ul. Uniwersytecka 7, 25-406 Kielce, Poland.
Phone: 0048-41-3496448. Office: 207.
francesco.giacosa@gmail.com
- Robert Pisarski (Internship Supervisor)
Department of Physics, Brookhaven National Laboratory,Upton, NY 11973
rob.pisarski@gmail.com
- Stanislaw Mrowczynski (Teacher)
Institute of Physics, Jan Kochanowski University
Department of Fundamental Research

National Centre for Nuclear Research
ul. Pasteura 7 PL-02-093 WARSAW, Poland
stanislaw.mrowczynski@ncbj.gov.pl

Conferences and Workshops attendees and talks

- “Glueball Resonance Gas Model” talk at 22nd Zimanyi School Winter Workshop on Heavy Ion Physics: 5-9 December 2022, Budapest, Hungary
- “2022 Town Hall meeting for Hot and Cold QCD” , MIT, Cambridge, Massachusetts, 23-25 September 2022
- “Phenomenology of the tensor mesons ” poster at ICHEP 2022 , Bologna, Italy, 6-13 July, 2022
- “Glueball Resonance Gas Model” V Doctoral Forum at Jan Kochanowski University, Kielce, Poland, 2 June, 2022
- “Quark Dyson-Schwinger equation solution in Mathematica” flash talk at ECT*, Trento, Italy 18 May 2022
- “Phenomenology of the tensor mesons” student talk at ECT*, Trento, Italy 4 May 2022
- “Thermal properties of a glueball gas” poster at Quark Matter 2022, Krakow, Poland: 4 April 2022
- “Phenomenology of the tensor mesons ” poster at Zimanyi School 2021 , Budapest (Hungary): (virtual) December 8, 2021
- “Phenomenology of the tensor mesons ” seminar at 61. Cracow School of Theoretical Physics, Zakopani (Poland): (virtual) September 21, 2021
- “Vacuum Phenomenology of the 3^{--} mesons ” poster at HaSp-STRONG2020 Workshop , York (UK): (virtual) September 15, 2021
- “Phenomenology of the spin-3 mesons ” Meson2021 online Krakow, Poland, 17 May -20 May, 2021
- “Phenomenology of the $J \geq 2$ mesons” phd seminar at Jan Kochanowski University, Kielce, Poland, 21 April, 2021
- “Some hints at missing resonances from known data” FunQCD: from first principles to effective theories, 29 March -01 April, 2021
- “Axial-tensor mesons within extended Linear Sigma Model” IV Doctoral Forum at Jan Kochanowski University, Kielce, Poland, 17 November, 2020
- “Phenomenology of the spin-3 mesons and glueball” phd seminar at Jan Kochanowski University, Kielce, Poland, 13 May, 2020
- “Phenomenology of the spin-3 mesons” school on “Frontiers in Nuclear and Hadronic Physics” GGI, Florence, Italy, Feb 24, 2020 - Mar 06, 2020 (student talk)

- “School and Workshop on Gauge Theories and Differential Invariants” ICTP, Trieste, Italy, 30 September - 11 October 2019
- “New Pathways in Explorations of Quantum Field Theory and Quantum Gravity Beyond Supersymmetry” ICTP, Trieste, Italy, 24 June-5 July 2019
- “Elliptic Integrable Systems, Special Functions and Quantum Field Theory”, Nordita, Sweden, 16-20 June 2019
- “Operators, Functions, and Systems of Mathematical Physics Conference” Khazar University, Baku, Azerbaijan 10-14 June 2019
- “Actual problems of knot theory: Mini workshop ” IMBM, Istanbul, Turkey, 29–31 October 2018
- “SUSY exact results and the star-triangle relation ” school on “Supersymmetric Localization and Exact Results” IHES, Bures-sur-Yvette, France, 27 July 2018 (student talk)
- “SUSY exact results and integrable models: 2d superconformal index” Workshop on Supersymmetric Localization, Holography and Related Topics” ICTP, Trieste, Italy, 10 July 2018 (poster)
- “Yang-Baxter Equation in the Context of Statistical Mechanics and Knot Theory ”, Mathematical Physics Days 2018 (invited talk) Koc University, Istanbul, Turkey, 19 May 2018
- YEFIST Conference Mimar Sinan Fine Arts University, Istanbul, Turkey, 28-29 April 2018
- “(Quantum) Integrable Systems from Supersymmetric Duality”, 16 TH WORKSHOP ON QUANTIZATION, DUALITIES AND INTEGRABLE SYSTEMS (QDIS-16) (invited talk) Mimar Sinan Fine Arts University, Istanbul, Turkey, 23 April 2018
- “KOBIT-2” Mimar Sinan Fine Arts University , Istanbul, Turkey, 1-2 February, 2018
- The XXVth International Colloquium on Integrable Systems, Prague, Czech Republic, 5 - 11 June 2017
- “2d $N = (2,2)$ supersymmetric index related to Yang-Baxter equation” YEFIST, Istanbul, Turkey, May 2017
- YEFIST Conference Yildiz Technical University, Istanbul, Turkey, 6-7 May 2017
- “Study of new variables for the search of the Higgs boson coupled to top quarks in the multi-lepton final state” Summer Student Program CERN, 12 August 2015 (student talk)
- “Superconformal Index” International Conference of Physics Students, Heidelberg, Germany, August 2014 (student talk)

Seminars

- “Phenomenology of light mesons with $J = 2, 3$ ” Białasówka seminar (invited talk) at AGH University of Science and Technology, Cracow, Poland, 14 April, 2023
- “Use of SUSY exact results in Statistical Mechanics” Phd seminar at Jan Kochanowski University, Kielce, Poland, 15 December, 2021

- “Phenomenology of the tensor mesons ” National Nuclear Research Center, Baku, Azerbaijan 6 August 2021
- “Exactly Solvable Models in Statistical Mechanics”, (master thesis defense talk), Istanbul, Turkey, 16 May 2019
- “Witten index as the Euler charecteristic of the manifold”, Blackboard Days seminar, Physics department of Mimar Sinan Fine Arts University, Istanbul, Turkey, 31 May 2018
- “Yang-Baxter equation in the context of two dimensional Ising model”, Koc University, Istanbul, Turkey, March 2018
- “Algebraic structure of eight vertex model”, Nesin Mathematics Village, Izmir, Turkey, January 2018
- “Partition function of Eight Vertex Model”, Physics department of Mimar Sinan Fine Arts University (Mathematical Physics Group meeting), Istanbul, Turkey, 15 December 2017
- “The hyperbolic modular double and the Yang-Baxter equation” (based on arxiv:1511.00131), Arxiv Seminars, Physics department of Mimar Sinan Fine Arts University, Istanbul, Turkey, 2 November 2017
- “A New Integrable Ising-type Model from 2d $N=(2,2)$ Dualities ”, Sirince school of Mathematical and Theoretical Physics, SMTP’2017, Nesin Mathematics Village, Izmir, Turkey, September 2017
- “New Solutions of Yang-Baxter equation from 2d $N=(2,2)$ supersymmetric theories, Feza Gursey Center, Bogazici University, Istanbul, Turkey, 26 January 2017
- “Integrable Lattice spin models from supersymmetric dualities” (postgraduate thesis defense) ICTP (International Center for Theoretical Physics), Trieste, Italy, August 2016
- “Preliminary Comparison between data and Monte Carlo simulation for IP variables at 13 TeV” TTH group seminar of CMS at CERN, 17 August 2015
- “Fractional statistics and field theory” (bachelor thesis defense) Baku State University, Baku, Azerbaijan, May, 2015
- “Witten Index” Nuclear Sciences and Its Applications VII Eurasian Conference, Baku, Azerbaijan, February 2014

Trainings and Schools

- “DTP 2022 | Hadron Physics with Functional Methods” at ECT*, Trento, Italy 2-19 May 2022
- “Block Lectures on Complex Analyses in High Energy Physics experiments” UJK, Kielce, Poland, September 14–18 March, 2022
- “Frontiers in Nuclear and Hadronic Physics 2020” GGI, Florence, Italy, Feb 24, 2020 - Mar 06, 2020
- “Exactly Solvable Models of Quantum Field Theory and Statistical Mechanics” Simons Center for Geometry and Physics, State University of New York, Stony Brook, United States, September 4– November 30, 2018

- “B-YEF: Summer School on Quantum Field Theory ” MSFAU, Istanbul, Turkey, 10–16 September 2018
- “Advanced methods of modern theoretical physics: integrable and stochastic systems” JINR, Dubna, Russia, 5–10 August 2018
- “Supersymmetric Localization and Exact Results” IHES, Bures-sur-Yvette, France, 16-28 July 2018
- “School and Workshop on Supersymmetric Localization, Holography and Related Topics” ICTP, Trieste, Italy, 2-14 July 2018
- “Recent advances in Quantum Gravity” Bogazici University, Istanbul, Turkey, 21-28 January, 2018
- Theoretical Physics Week Nesin Mathematics Village, Izmir, Turkey, 15-18 January 2018
- School and Workshop "Physics of the Standard Model and Beyond" Tbilisi, Georgia, 25-30 September 2017
- Sirince school of Mathematical and Theoretical Physics, SMTP'2017, Nesin Mathematics Village, Izmir, Turkey, 18-24 September 2017
- Supersymmetry and Applications, Feza Gursey Center, Bogazici University, Istanbul, Turkey, 25 January- 2 February, 2017
- Nesin Mathematics Village, Izmir, Turkey 7-18 September 2016
- Root Workshop at CERN, Geneva, July 2015
- Undergraduate and Graduate Mathematics Summer School, Nesin Mathematics Village, Izmir, Turkey, 15 - 21 September 2014
- Feza Gursey Summer school on Cosmology and Astroparticle Physics, Bogazichi University, Istanbul, Turkey, 1 - 12 September 2014
- 52nd International School of Subnuclear Physics: Status of theoretical understanding and of experimental power for LHC physics and beyond, Erice, Italy, 24 June - 3 July 2014

Awards

- Rector’s Award "Prodomus" at Jan Kochanowski University of Kielce, Poland, November 2020
- Postgraduate Diploma on High Energy Physics, Cosmology and Astroparticle Physics, ICTP, Trieste, Italy, August 2016
- “The Best Student of the Year” Baku State University, 2012

Grants and Scholarships

- Scholarship for “DTP 2022 | Hadron Physics with Functional Methods” at ECT*, Trento, Italy 2-19 May 2022

- “Development Accelerator of the Jan Kochanowski University of Kielce”, co-financed by the European Union under the European Social Fund, with no. POWR.03.05. 00-00-Z212 / 18.
- “TUBITAK” The Scientific and Technological Research Council of Turkey, student researcher on the Grant Number 117F327, 2018 – 2019
- “CERN summer student research grant” , 2015
- “Abdus Salam International Center for Theoretical Physics, (Trieste, Italy) full one year funding for studying at Postgraduate Diploma program at the center” , 2015–2016
- International Conference of Physics Students Worldwide Grant, European Physics Student Association, 2014