

# Mirza Hadžimehmedović

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## Education

- 2006–2011 **Ph.D (Physics)**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.
- 2001–2006 **M.Sc. (Physics)**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.
- 1995–2001 **High school teacher of Physics and Mathematics**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.

## Work Experience

- 2016– **Associate Professor**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.  
*General and Theoretical Physics.*  
General Physics, Mathematical Methods for Physicists, Statistical Physics and Thermodynamics, Electrodynamics, Symmetry in Physics, Computational Physics, Elementary Particles Physics
- 2011–2016 **Assistant Professor**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.  
*General and Theoretical Physics.*  
General Physics, Mathematical Methods for Physicists, Statistical Physics and Thermodynamics, Electrodynamics, Symmetry in Physics, Computational Physics.
- 2006–2011 **Teaching Assistant**, *Faculty of Natural Sciences and Mathematics*, Tuzla, Bosna i Hercegovina.  
*General and Theoretical Physics.*  
General Physics, Mathematical Methods for Physicists, Statistical Physics and Thermodynamics, Electrodynamics, Computational Physics.
- 2000–2006 **High School Teacher of Mathematics**, *Technical High School*, Tuzla, Bosna i Hercegovina.

## Language

- Bosnian Mother tongue
- English **B2**

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## Computer skills

Basic	C#, Gimp, Inkscape, OpenOffice
Intermediate	PYTHON, Tensorflow, DaVinciResolve, Jupiter, Audacity
Advanced	Fortran, Blender, Mathematica, XmGrace, GnuPlot, LaTeX, LyX, Kate, Visual Studio Code, PyCharm, Linux, Kile, MANIM

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## Certificates

- 2021 **DeepLearning.AI TensorFlow Developer Professional Certificate** (Verify this certificate at: [coursera.org/verify/professional-cert/JW7UPMM23BFB](https://coursera.org/verify/professional-cert/JW7UPMM23BFB))
- 2021 **TensorFlow: Advanced Techniques Specialization** (Verify this certificate at: [coursera.org/verify/specialization/AGHMMVU3XGZ5](https://coursera.org/verify/specialization/AGHMMVU3XGZ5))

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## Papers

- 2007 1. **M. Hadzimehmedovic**, H. Osmanovic, J. Stahov, *Evaluation of the Pion- Nucleon Sigma Term Using Dispersion Relations – Present Status*, In the Proceedings of 11th Int. Conference on Meson- Nucleon Scattering and the Structure of the Nucleon (MENU2007), Juelich, Germany, 2007, eConf **C070910**, 234 (2008).
- 2011 2. **M. Hadžimehmedović**, S. Ceci, A. Švarc, H. Osmanović, J. Stahov, *Poles, the only true resonant-state signals, are extracted from a worldwide collection of partial wave amplitudes using only one, well controlled pole-extraction method*, Phys.Rev. C **84** (2011).
- 2011 3. H. Osmanović, S. Ceci, A. Švarc, **M. Hadžimehmedović**, J. Stahov, *Stability of the Zagreb Carnegie-Mellon-Berkeley model*, Phys.Rev. C **84** (2011).
- 2013 4. A. Švarc, **M. Hadžimehmedović**, H. Osmanović, J. Stahov, L. Tiator, R. L. Workman, *Introducing the Pietarinen expansion method into the single-channel pole extraction problem*, Phys.Rev. C **88** (2013).
- 2014 5. A. Švarc, **M. Hadžimehmedović**, R. Omerović, H. Osmanović, J. Stahov, *Poles of Karlsruhe-Helsinki KH80 and KA84 solutions extracted by using the Laurent-Pietarinen method*, Phys.Rev C **89** (2014).
- 2014 6. A. Švarc, **M. Hadžimehmedović**, H. Osmanović, J. Stahov, L. Tiator, R. L. Workman, *Pole positions and residues from pion photoproduction using Laurent-Pietarinen method*, Phys.Rev. C **89** (2014).
- 2015 7. A. Švarc, **M. Hadžimehmedović**, H. Osmanović, J. Stahov, R. L. Workman, *Pole structure from energy-dependent fits to GWU-SAID elastic scattering data*, Phys.Rev. C **91** (2015)

- 2015 8. **M. Hadzimehmedovic**, V. Kashevarov, K. Nikonov, R. Omerovic, H. Osmanovic, M. Ostrick, J. Stahov, A. Svarc, L. Tiator, *Partial wave analysis of  $\eta$  data with analyticity constraints*, Proceedings of the Mini-workshop, Exploring Hadron Resonances, Letnik 16, ŠT.1 VOL .16, No . 1, DMFA-Založništvo, Ljubljana, Novembar 2015, 40-48, ISSN 1580-4992.
- 2016 9. A. Švarc, **M. Hadžimehmedović**, H. Osmanović, J. Stahov, L. Tiator, R. L. Workman, *Generalization of the model-independent Laurent-Pietarinen single-channel pole-extraction formalism to multiple channels*, Physics Letters B **755** (2016)
- 2017 10. S. Ceci, **M. Hadžimehmedović**, H. Osmanović, A. Percan, B. Zauner, *Fundamental properties of resonances*, Scientific Reports **7** (2017)
- 2017 11. L. Tiator, M. Döring, R.L. Workman, **M. Hadžimehmedović**, H. Osmanović, R. Omerović, J. Stahov, A. Švarc, *Baryon transition form factors at the pole*, Phys.Rev. C **94** (2017)
- 2017 12. A.V. Anisovich, V. Burkert, **M. Hadžimehmedović**, D.G. Ireland, E. Klempt, V.A. Nikonov, R. Omerović, H. Osmanović, A.V. Sarantsev, J. Stahov, A. Švarc, U. Thoma, *Strong Evidence for Nucleon Resonances near 1900 MeV*, Physical Review Letters **119** (2017)
- 2017 13. AV Anisovich, V Burkert, **M. Hadžimehmedović**, DG Ireland, E Klempt, VA Nikonov, R Omerović, AV Sarantsev, J Stahov, A Švarc, U Thoma,  *$N^*$  resonances from  $K\Lambda$  amplitudes in sliced bins in energy*, The European Physical Journal A **53** (2017)
- 2018 14. H Osmanović, **M. Hadžimehmedović**, R Omerović, J Stahov, V Kashevarov, K Nikonov, M Ostrick, L Tiator, A Švarc, *Fixed- analyticity as a constraint in single-energy partial-wave analyses of meson photoproduction reactions*, Physical Review C **97** (2018)
- 2018 15. A Švarc, Y Wunderlich, H Osmanović, **M. Hadžimehmedović**, R Omerović, J Stahov, V Kashevarov, K Nikonov, M Ostrick, L Tiator, R Workman, *Connection between angle-dependent phase ambiguities and the uniqueness of the partial-wave decomposition*, Physical Review C **97** (2018)
- 2018 16. A Švarc, Y Wunderlich, H Osmanović, **M. Hadžimehmedović**, R Omerović, J Stahov, V Kashevarov, K Nikonov, M Ostrick, L Tiator, R Workman, *From Experimental Data to Pole Parameters in a Direct Way (Angle Dependent Continuum Ambiguity and Laurent+ Pietarinen Expansion)*, Few-Body Systems 59 (5), 1-14 (2018)
- 2018 17. A Švarc, H Osmanović, **M. Hadžimehmedović**, R Omerović, J Stahov, M Gorchteyn, V Kashevarov, K Nikonov, M Ostrick, L Tiator, *Role of angle-dependent phase rotations of reaction amplitudes in  $\eta$  photoproduction on protons*, Physical Review C **98** (4), 045206 (2018)
- 2018 18. L Tiator, M Gorchtein, VL Kashevarov, K Nikonov, M Ostrick, **M. Hadžimehmedović**, R Omerović, H Osmanović, J Stahov, A Švarc, *Eta and etaprime photoproduction on the nucleon with the isobar model Eta-MAID2018*, The European Physical Journal A 54 (12), 1-32 (2018)

- 2019 19. H Osmanović, **M. Hadžimehmedović**, R Omerović, J Stahov, M Gorchtein, V Kashevarov, K Nikonov, M Ostrick, L Tiator, A Švarc, *Single-energy partial wave analysis for  $\pi^0$  photoproduction on the proton with fixed- $t$  analyticity imposed*, Physical Review C **100** (5), 055203 (2019)
- 2019 20. WJ Briscoe, **M. Hadžimehmedović**, AE Kudryavtsev, VV Kulikov, MA Martemianov, II Strakovsky, Alfred Švarc, VE Tarasov, RL Workman, S Abt, P Achenbach, CS Akondi, F Afzal, P Aguar-Bartolomé, Z Ahmed, JRM Annand, HJ Arends, K Bantawa, M Bashkanov, R Beck, M Biroth, N Borisov, A Braghieri, SA Bulychjov, F Cividini, C Collicott, S Costanza, A Denig, EJ Downie, P Drexler, S Fegan, MI Ferretti Bondy, S Gardner, D Ghosal, DI Glazier, I Gorodnov, W Gradl, M Günther, D Gurevich, L Heijkenkjöld, D Hornidge, GM Huber, A Käser, VL Kashevarov, S Kay, Milorad Korolija, B Krusche, A Lazarev, K Livingston, S Lutterer, IJD MacGregor, R Macrae, DM Manley, PP Martel, JC McGeorge, DG Middleton, R Miskimen, E Mornacchi, A Mushkarenkov, C Mullen, A Neganov, A Neiser, M Ostrick, PB Otte, H Osmanović, R Omerović, B Oussena, D Paudyal, P Pedroni, A Powell, SN Prakhov, G Ron, T Rostomyan, A Sarty, C Sfienti, V Sokhoyan, K Spieker, J Stahov, O Steffen, Ivan Supek, A Thiel, M Thiel, A Thomas, L Tiator, M Unverzagt, Yu A Usov, NK Walford, DP Watts, S Wagner, D Werthmüller, J Wettig, M Wolfes, N Zachariou, *Cross section for  $\gamma n \rightarrow \pi^0 n$  measured at the Mainz A2 experiment*, Physical Review C **100** (6), 065205 (2019)
- 2021 21. H Osmanović, M Hadžimehmedović, R Omerović, J Stahov, V Kashevarov, M Ostrick, L Tiator, A Švarc, *Single-energy partial-wave analysis for pion photoproduction with fixed- analyticity*, Physical Review C **104** (3), 034605 (2021)

## Workshops and Conferences

- 2006 Speaker 1. **M. Hadzimehmedovic**, H. Osmanovic, *Three methods of determination of the  $\pi N$  sigma term*, The 3rd International Pion-Nucleon PWA Workshop, University of Tuzla, BiH, (2006).
- 2007 Speaker 2. **M. Hadzimehmedovic**, H. Osmanovic, *How to include photoproduction into CMB formalism? A progress report*, The 4th International Pion-Nucleon PWA Workshop, Helsinki Institute of Physics, Helsinki, Finland, (2007).
- 2009 Speaker 3. **M. Hadzimehmedovic**, H. Osmanovic, J. Stahov, S. Ceci, A. Svarc, B. Zauner, *Pole Extraction from a World Collection of PWA*, The 5th International Pion-Nucleon PWA Workshop and Interpretation of Baryon Resonances, European Centre for Theoretical Studies in Nuclear Physics and Related Areas( ECT\*), Trento (Italy), 2009.
- 2016 Speaker 4. **M. Hadzimehmedovic**, H. Osmanovic, R. Omerovic, J. Stahov, L. Tiator, R. L. Workman,  *$N \rightarrow \Delta$  transition form factors at the pole in the multi-channel  $L+P$  approach*, Collaboration Meeting PWA with Complete Experiments, Institut fur Kernphysik, Mainz, Germany, 2016.

- 2017 5. **M. Hadzimehmedovic**, H. Osmanovic, R. Omerovic, J. Stahov, A. Speaker Švarc, L. Tiator, R. L. Workman, *Laurent+Pietarinen Method in Baryon Spectroscopy*, The International Workshop on Partial Wave Analyses and Advanced Tools for Hadron Spectroscopy (PWA9/ATHOS4), Bad Honnef, Germany, 2017.
- 2018 6. **M. Hadzimehmedovic**, H. Osmanovic, R. Omerovic, J. Stahov, A. Speaker Švarc, L. Tiator, R. L. Workman, *Pole parameters from eta photoproduction data using L+P method*, The International Workshop on Partial Wave Analyses and Advanced Tools for Hadron Spectroscopy (PWA10/ATHOS4), HEP Beijing, China, 2018.
- 2009 1. A. Švarc, S. Ceci, B. Zauner, **M. Hadžimehmedović**, H. Osmanović, J. Stahov, *Bare and dressed poles of PWD and PW amplitudes*, The 5th International Pion-Nucleon PWA Workshop and Interpretation of Baryon Resonances, Trento, Italy, 2009.
- 2013 2. H. Osmanovic, A. Svarc, **M. Hadzimehmedovic**, J. Stahov, L. Tiator, R. Workman, *A new method for extracting poles from single channel data-some results*, PWA tools in Hadronic Spectroscopy, Mainz, Germany, February 18-20, 2013.
- 2013 3. A. Svarc, **M. Hadzimehmedovic**, H. Osmanovic, J. Stahov, *New single-channel pole extraction method*, PWA tools in Hadronic Spectroscopy, Mainz, Germany, February 18-20, 2013.
- 2013 4. H. Osmanovic, A. Švarc, **M. Hadžimehmedović**, J. Stahov, L. Tiator and R. Workman, *Resonance parameters from pion photoproduction data using L+P method*, 7th International Workshop on Pion-Nucleon Partial-Wave Analysis and the Interpretation of Baryon Resonances (PWA7), Camogli, Italy, 23-27 September 2013.
- 2013 4. A. Švarc, **M. Hadžimehmedović**, H. Osmanovic, J. Stahov, L. Tiator and R. Workman, *Introducing Pietarinen expansion method into single-channel pole extraction problem*, ATHOS 2013 - International Workshop on New Partial-Wave Analysis Tools for Next generation Hadron Spectroscopy Experiments 21-24 May 2013 Kloster Seeon, Germany.
- 2015 5. **M. Hadzimehmedovic**, V. Kashevarov, K. Nikonov, R. Omerovic, H. Osmanovic, M. Ostrick, J. Stahov, A. Svarc, L. Tiator, *Partial wave analysis of  $\eta$  photoproduction data with analyticity constraints*, Exploring Hadron Resonances, Bled, Slovenia (2015).
- 2015 6. **Tuzla-Zagreb-Mainz-Washington Collaboration**, *Partial wave and  $N^*$  analysis with analyticity*, PWA8/ATHOS3 The International Workshop on Partial Wave Analysis for Hadron Spectroscopy, 13-17 April 2015., Ashburn Virginia SAD.

## Research Projects

- 2003/2004 *Invariant amplitude of pion-nucleon scattering at low energies and in the non-Associate physical region within Mandelstam's triangle*, Federal Ministry of Science.

- 2007/2008 Associate *Calculating partial wave of the pion-Nucleon scattering at low energies*, Federal Ministry of Science.
- 2010/2011 Associate *Determination of pole for the T-matrix using coupled channel method*, Federal Ministry of Science.
- 2013/2014 Associate *Determination of resonance parameters in the process of mezon photoproduction*, Federal Ministry of Science.
- 2012/2013 Leader *Determination of Barion Resonance Parameters from Partial Wave Analysis KH80*, Ministry of Education, Science, Culture and Sport of Tuzla Canton.

## University book

- 2015 Mirza Hadžimehmedović, Milan Pantić, *Mathematical Basics of Theoretical Physics I*, PrintCom, Tuzla.

## Book Reviews

- 2013 Aner Čerkić, Senad Odžak, Dušanka Hadžiahmetović, *Statistical Physics*, Univerzitetsko izdanje, Prirodno-matematički fakultet Univerziteta u Sarajevu (2013).
- 2015 Mustafa Busuladžić, Aner Čerkić, Azra Gazibegović-Busuladžić, Elvedin Hasović, Jugoslav Stahov, *Physics with application in Biology and Medicine*, Faculty of Natural Sciences and Mathematics, University of Sarajevo, (2015).
- 2015 Vanes Mešić, *Introduction to didactics of physics*, Faculty of Natural Sciences and Mathematics, University of Sarajevo, (2015).

## Mentorships

- 2012 Undergraduate Selmira Tupkušić, Faculty of Natural Sciences and Mathematics, University of Tuzla.
- 2013 Undergraduate Merita Jahić, Faculty of Natural Sciences and Mathematics, University of Tuzla.
- 2015 Undergraduate Enisa Okić, Faculty of Natural Sciences and Mathematics, University of Tuzla.
- 2015 Undergraduate Šejla Hadžić, Faculty of Natural Sciences and Mathematics, University of Tuzla.
- 2016 Undergraduate Moris Okić, Faculty of Natural Sciences and Mathematics, University of Tuzla.
- 2016 Graduate Selmira Smajić, *Influence of complex branch point on parameters of barion resonances*, Faculty of Natural Sciences and Mathematics, University of Tuzla.

## Organizational Skills

- 2006 Member of the organizing committee of the 3th Pion-Nucleon PWA Workshop, Tuzla, Bosna i Hercegovina

- 2017 Vice-chair and member of the organizing committee of the Symposium, CONNECT 2017, Neum, Bosna i Hercegovina
- 2020 Vice-chair and member of the organizing committee of the Symposium, CONNECT 2020, Neum, Bosna i Hercegovina
- 2020 Chairman and member of the IOC of THOR Winter School, Sarajevo, Bosnia and Herzegovina
- 2021 Regional coordinator and memeber of IOC of the Cultural Collisions BiH - PAST, PRESENT & FUTURE OF THE UNIVERSE, CERN Virtual Visit (CMS)
- 2021 Chairman of the Scince Train CONNECT21 - DAAD, Banja Luka, Bosnia and Herzegovina
- 2021 Vice-chair and member of the organizing committee of the Symposium, CONNECT 2021, Neum, Bosna i Hercegovina (<https://www.connect2020.online/>)