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Professional Profile

Dr. Marianna Gabrielyan is an experimental particle and nuclear physicist with extensive experience in data analytics, data quality assurance, cleaning, modeling and data visualization for reporting. She has expertise in building graphical user interfaces with custom environments for online data monitoring as well as controlling and visualizing real time data for safety critical elements.

Through her work at University of Pennsylvania, Dr. Gabrielyan developed laboratory research skills for working with magnetic resonance imaging (MRI) scanners and image processing. She also has experience in working with source code repositories using Git/GitHub version control management tools and Linux command line applications, as well as programming languages including C++, MATLAB and Python.

Prior to joining Exponent, Dr. Gabrielyan was a postdoctoral fellow at the Perelman School of Medicine at the University of Pennsylvania. There she worked on development and validation of brain perfusion phantom for arterial spin labeled (ASL) magnetic resonance (MR) imaging, based on impinging fluid jets. ASL perfusion phantom is a mechanical device used for calibration of MR imaging protocols to produce reliable results across different vendor platforms, across subjects and longitudinal studies. She performed all the validation experiments, data acquisition, image processing and data analysis using custom code. Most recently, she implemented gradient system calibration method into a pulse sequence, using custom code to analyze the raw data.

Academic Credentials & Professional Honors

Ph.D., Physics, Florida International University, 2012

Outstanding Dissertation Award, FIU, 2012

Graduate Student Research Competition, 1st place, 2010

Licenses and Certifications

Amazon Web Services (AWS) Certified Cloud Practitioner (CA)

Prior Experience

Postdoctoral Fellow, PSOM, University of Pennsylvania 2017-2021

Research Associate, University of Minnesota, 2013-2017

Adjunct Professor of Physics, Miami Dade College, 2013

Languages

Armenian

Russian

Publications

Selected Publications

Gabrielyan, M., Tisdall, M. D., Kammer, C., Higgins, C., Arratia, P. E., & Detre, J. A. (2021). A perfusion phantom for ASL MRI based on impinging jets. *Magnetic Resonance in Medicine*, 86(2), 1145-1158.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2017). Search for flavor-changing nonstandard neutrino interactions using ν_e appearance in MINOS. *Physical Review D*, 95(1), 012005.

Gabrielyan, M., Raue, B. A., Carman, D. S., Park, K., Adhikari, K. P., Adikaram, D., ... & CLAS Collaboration. (2014). Induced polarization of Λ (1116) in kaon electroproduction. *Physical Review C*, 90(3), 035202.

Stepanyan, S., Boyarinov, S., Egiyan, H., Guo, L., Dale, D., Gabrielyan, M., ... & Wood, M. H. (2007). Energy calibration of the JLab bremsstrahlung tagging system. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 572(2), 654-661.

Other Co-authored Publications

Gogami, T., Chen, C., Kawama, D., Achenbach, P., Ahmidouch, A., Albayrak, I., ... & Zhu, L. (2021). Spectroscopy of $A = 9$ hyperlithium with the $(e, e' K^+)$ reaction. *Physical Review C*, 103(4), L041301.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Blake, A., Cao, S. V., ... & Wojcicki, S. G. (2020). Precision Constraints for Three-Flavor Neutrino Oscillations from the Full MINOS+ and MINOS Dataset. *Physical review letters*, 125(13), 131802.

Adamson, P., An, F. P., Anghel, I., Aurisano, A., Balantekin, A. B., Band, H. R., ... & Naumova, E. (2020). Improved constraints on sterile neutrino mixing from disappearance searches in the MINOS, MINOS+, Daya Bay, and Bugey-3 experiments. *Physical review letters*, 125(7), 071801.

Ambrozewicz, P., Ye, L., Prok, Y., Larin, I., Ahmidouch, A., Baker, K., ... & Zihlmann, B. (2019). High precision measurement of Compton scattering in the 5 GeV region. *Physics Letters B*, 797, 134884.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos+ Collaboration. (2019). Search for sterile neutrinos in MINOS and MINOS+ using a two-detector fit. *Physical review letters*, 122(9), 091803.

Qiu, X., Tang, L., Chen, C., Margaryan, A., Wood, S. A., Achenbach, P., ... & Zhu, L. (2018). Direct measurements of the lifetime of medium-heavy hypernuclei. *Nuclear Physics A*, 973, 116-148.

Adamson, P., Aliaga, L., Ambrose, D., Anfimov, N., Antoshkin, A., Arrieta-Diaz, E., ... & Song, E.

(2017). Search for active-sterile neutrino mixing using neutral-current interactions in NOvA. *Physical Review D*, 96(7), 072006.

Adamson, P., Aliaga, L., Ambrose, D., Anfimov, N., Antoshkin, A., Arrieta-Diaz, E., ... & Sousa, A. (2017). Constraints on Oscillation Parameters from ν_e Appearance and ν_μ Disappearance in NOvA. *Physical review letters*, 118(23), 231801.

Adamson, P., Aliaga, L., Ambrose, D., Anfimov, N., Antoshkin, A., Arrieta-Diaz, E., ... & Song, E. (2017). Measurement of the neutrino mixing angle θ_{23} in NOvA. *Physical review letters*, 118(15), 151802.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2017). Search for flavor-changing nonstandard neutrino interactions using ν_e appearance in MINOS. *Physical Review D*, 95(1), 012005.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2016). Constraints on large extra dimensions from the MINOS experiment. *Physical Review D*, 94(11), 111101.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2016). Measurement of single π^0 production by coherent neutral-current ν Fe interactions in the MINOS Near Detector. *Physical Review D*, 94(7), 072006.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2016). Search for sterile neutrinos mixing with muon neutrinos in MINOS. *Physical review letters*, 117(15), 151803.

Adamson, P., An, F. P., Anghel, I., Aurisano, A., Balantekin, A. B., Band, H. R., ... & Li, Z. B. (2016). Limits on active to sterile neutrino oscillations from disappearance searches in the MINOS, Daya Bay, and Bugey-3 experiments. *Physical review letters*, 117(15), 151801.

Gogami, T., Chen, C., Kawama, D., Achenbach, P., Ahmidouch, A., Albayrak, I., ... & Zhu, L. (2016). Spectroscopy of the neutron-rich hypernucleus $He \Lambda 7$ from electron scattering. *Physical Review C*, 94(2), 021302.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Zwaska, R. (2016). Search for time-independent Lorentz violation using muon neutrino to muon antineutrino transitions in MINOS. *arXiv preprint arXiv:1605.03146*.

Adamson, P., Ader, C., Andrews, M., Anfimov, N., Anghel, I., Arms, K., ... & Moren, A. (2016). First measurement of electron neutrino appearance in NOvA. *Physical review letters*, 116(15), 151806.

Adamson, P., Anghel, I., Aurisano, A., Barr, G., Bishai, M., Blake, A., ... & Minos Collaboration. (2016). Measurement of the multiple-muon charge ratio in the MINOS Far Detector. *Physical Review D*, 93(5), 052017.

Adamson, P., Ader, C., Andrews, M., Anfimov, N., Anghel, I., Arms, K., ... & Moren, A. (2016). First measurement of muon-neutrino disappearance in NOvA. *Physical Review D*, 93(5), 051104.

Gogami, T., Chen, C., Kawama, D., Achenbach, P., Ahmidouch, A., Albayrak, I., ... & Zhu, L. (2016). High resolution spectroscopic study of $Be \Lambda 10$. *Physical Review C*, 93(3), 034314.

Gogami, T., Achenbach, P., Ahmidouch, A., Albayrak, I., Androic, D., Asaturyan, A., ... & Zhu, L. (2015). High Resolution Λ Hypernuclear Spectroscopy with Electron Beams. In *Proceedings of the 2nd International Symposium on Science at J-PARC—Unlocking the Mysteries of Life, Matter and the Universe—* (p. 021010).

Teymurazyan, A., Ahmidouch, A., Ambrozewicz, P., Asratyan, A., Baker, K., Benton, L., ... & Zhou, S. (2014). High precision photon flux determination for photon tagging experiments. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 767, 300-309.

Tang, L., Chen, C., Gogami, T., Kawama, D., Han, Y., Yuan, L., ... & Zhu, L. (2014). Experiments with the High Resolution Kaon Spectrometer at JLab Hall C and the new spectroscopy of Λ 12 B hypernuclei. *Physical Review C*, 90(3), 034320.

Tang, L., Smith, G., Schott, D., Kalantarians, N., Luo, W., Niculescu, G., ... & Niculescu, M. I. (2014). The HKS Experiments at JLab Hall C and the New Spectroscopy of Λ 12 B Hypernuclei. *Phys. Rev. C*, 90(arXiv: 1406.2353), 034320.

Gogami, T., Achenbach, P., Ahmidouch, A., Albayrak, I., Androic, D., Asaturyan, A., ... & Zhu, L. (2014). Spectroscopic Research of Lambda Hypdenuclei at JLab Hall C. In *Proceedings of the 12th Asia Pacific Physics Conference (APPC12)* (p. 013077).

Lu, H. Y., Schumacher, R. A., Adhikari, K. P., Adikaram, D., Aghasyan, M., Amaryan, M. J., ... & CLAS Collaboration. (2013). First observation of the Λ (1405) line shape in electroproduction. *Physical Review C*, 88(4), 045202.

Gogami, T., Achenbach, P., Ahmidouch, A., Albayrak, I., Androic, D., Asaturyan, A., ... & Zhu, L. (2013). Electroproduction of $K^+ \Lambda$ at JLab Hall-C. *Few-Body Systems*, 54(7-10), 1227-1230.

Tang, W., Hicks, K., Keller, D., Kim, S. H., Kim, H. C., Adhikari, K. P., ... & CLAS Collaboration. (2013). Cross sections for the $\gamma p \rightarrow K^+ \Lambda$ and $\gamma p \rightarrow K^+ \Sigma^0$ reactions measured at CLAS. *Physical Review C*, 87(6), 065204.

Hen, O., Hakobyan, H., Shneor, R., Piasetzky, E., Weinstein, L. B., Brooks, W. K., ... & Zonta, I. (2013). Measurement of transparency ratios for protons from short-range correlated pairs. *Physics Letters B*, 722(1-3), 63-68.

Nepali, C. S., Amaryan, M., Adhikari, K. P., Aghasyan, M., Pereira, S. A., Baghdasaryan, H., ... & CLAS Collaboration. (2013). Transverse polarization of $\Sigma^+(1189)$ in photoproduction on a hydrogen target in CLAS. *Physical Review C*, 87(4), 045206.

Khetarpal, P., Stoler, P., Aznauryan, I. G., Kubarovsky, V., Adhikari, K. P., Adikaram, D., ... & Voskanyan, H. (2013). Near-threshold neutral pion electroproduction at high momentum transfers and generalized form factors. *Physical Review C*, 87(4), 045205.

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Qiu, X., Tang, L., Margaryan, A., Achenbach, P., Ahmidouch, A., Albayrak, I., ... & Zhu, L. (2012). Direct Measurements of the Lifetime of Heavy Hypernuclei. arXiv preprint arXiv:1212.1133.

Baghdasaryan, H., Weinstein, L. B., Laget, J. M., Adhikari, K. P., Aghasyan, M., Amaryan, M. J., ... & CLAS Collaboration. (2012). Comparison of forward and backward $p p$ pair knockout in ^3He ($e, e' p p$) n . *Physical Review C*, 85(6), 064318.

El Fassi, L., Zana, L., Hafidi, K., Holtrop, M., Mustapha, B., Brooks, W. K., ... & Watts, D. (2012). Evidence for the onset of color transparency in p_0 electroproduction off nuclei. *Physics Letters B*, 712(4-5), 326-330.

Baillie, N., Tkachenko, S., Zhang, J., Bosted, P., Bültmann, S., Christy, M. E., ... & CLAS Collaboration. (2012). Measurement of the neutron F₂ structure function via spectator tagging with CLAS. *Physical review letters*, 108(14), 142001.

Park, K., Gothe, R. W., Adhikari, K. P., Adikaram, D., Anghinolfi, M., Baghdasaryan, H., ... & CLAS Collaboration. (2012). Measurement of the generalized form factors near threshold via $\gamma^* p \rightarrow n \pi^+$ at high Q². *Physical Review C*, 85(3), 035208.

Keller, D., Hicks, K., Adhikari, K. P., Adikaram, D., Amaryan, M. J., Anghinolfi, M., ... & CLAS Collaboration. (2012). Branching ratio of the electromagnetic decay of the $\Sigma^+(1385)$. *Physical Review D*, 85(5), 052004.

Egiyan, H., Langheinrich, J., Gothe, R. W., Graham, L., Holtrop, M., Lu, H., ... & CLAS Collaboration. (2012). Upper limits for the photoproduction cross section for the $\Phi^{--}(1860)$ pentaquark state off the deuteron. *Physical Review C*, 85(1), 015205.

Daniel, A., Hicks, K., Brooks, W. K., Hakobyan, H., Adhikari, K. P., Adikaram, D., ... & Zhao, Z. W. (2011). Measurement of the nuclear multiplicity ratio for K_{s0} hadronization at CLAS. *Physics Letters B*, 706(1), 26-31.

Daniel, A., Hicks, K., Brooks, W. K., Hakobyan, H., Adhikari, K. P., Adikaram, D., ... & Zhao, Z. W. (2011). Measurement of the nuclear multiplicity ratio or image hadronization K_{0s} at CLAS. *Physics Letters. Section B*, 706(JLAB-PHY-11-1439; DOE/OR/23177-1871; arXiv: 1111.2573).

Aghasyan, M., Avakian, H., Rossi, P., De Sanctis, E., Hasch, D., Mirazita, M., ... & Wood, M. H. (2011). Precise measurements of beam spin asymmetries in semi-inclusive π^0 production. *Physics Letters B*, 704(5), 397-402.

Keller, D., Hicks, K., Adhikari, K. P., Adikaram, D., Aghasyan, M., Amarian, M., ... & CLAS Collaboration. (2011). Electromagnetic decay of the $\Sigma^0(1385)$ to $\Lambda \gamma$. *Physical Review D*, 83(7), 072004.

Larin, I., McNulty, D., Clinton, E., Ambrozewicz, P., Lawrence, D., Nakagawa, I., ... & PrimEx Collaboration. (2011). New measurement of the π^0 radiative decay width. *Physical review letters*, 106(16), 162303.

Nasseripour, R., Berman, B. L., Adhikari, K. P., Adikaram, D., Anghinolfi, M., Ball, J., ... & CLAS Collaboration. (2011). Coherent photoproduction of π^+ from He³. *Physical Review C*, 83(3), 034001.

Qian, X., Chen, W., Gao, H., Hicks, K., Kramer, K., Laget, J. M., ... & CLAS Collaboration. (2011). Near-threshold photoproduction of ϕ mesons from deuterium. *Physics Letters B*, 696(4), 338-342.

Sánchez, G., Fernández, C., Montecinos, L., Domenech, R. J., & Donoso, P. (2011). Preconditioning tachycardia decreases the activity of the mitochondrial permeability transition pore in the dog heart. *Biochemical and biophysical research communications*, 410(4), 916-921.

Larin, I., McNulty, D., Clinton, E., Ambrozewicz, P., Lawrence, D., Nakagawa, I., ... & Zhou, S. (2011). New Measurement of the π^0 [pi superscript 0] Radiative Decay Width.

Avakian, H., Bosted, P., Burkert, V. D., Elouadrhiri, L., Adhikari, K. P., Aghasyan, M., ... & CLAS Collaboration. (2010). Measurement of single-and double-spin asymmetries in deep inelastic pion electroproduction with a longitudinally polarized target. *Physical review letters*, 105(26), 262002.

Baghdasaryan, H., Weinstein, L. B., Laget, J. M., Adhikari, K. P., Aghasyan, M., Amarian, M., ... & CLAS Collaboration. (2010). Tensor Correlations Measured in He³ (e, e' p) n. *Physical review*

letters, 105(22), 222501.

Osipenko, M., Ricco, G., Simula, S., Ripani, M., Taiuti, M., Adhikari, K. P., ... & Zhao, B. (2010). Measurement of the nucleon structure function F_2 in the nuclear medium and evaluation of its moments. *Nuclear Physics A*, 845(1-4), 1-32.

Wood, M. H., Nasseripour, R., Paolone, M., Djalali, C., Weygand, D. P., Adhikari, K. P., ... & CLAS Collaboration. (2010). Absorption of the ω and ϕ Mesons in Nuclei. *Physical review letters*, 105(11), 112301.

Dey, B., Meyer, C. A., Bellis, M., McCracken, M. E., Williams, M., Adhikari, K. P., ... & CLAS Collaboration. (2010). Differential cross sections and recoil polarizations for the reaction $\gamma p \rightarrow K^+ \Sigma^0$. *Physical Review C*, 82(2), 025202.

Pereira, S. A., Mirazita, M., Rossi, P., De Sanctis, E., Niculescu, G., Niculescu, I., ... & CLAS Collaboration. (2010). Differential cross section of $\gamma n \rightarrow K^+ \Sigma^-$ on bound neutrons with incident photons from 1.1 to 3.6 GeV. *Physics Letters B*, 688(4-5), 289-293.

McCracken, M. E., Bellis, M., Meyer, C. A., Williams, M., Adhikari, K. P., Anghinolfi, M., ... & CLAS Collaboration. (2010). Differential cross section and recoil polarization measurements for the $\gamma p \rightarrow K^+ \Lambda$ reaction using CLAS at Jefferson Lab. *Physical Review C*, 81(2), 025201.

Williams, M., Applegate, D., Bellis, M., Meyer, C. A., Adhikari, K. P., Anghinolfi, M., ... & CLAS Collaboration. (2009). Partial wave analysis of the reaction $\gamma p \rightarrow p \omega$ and the search for nucleon resonances. *Physical Review C*, 80(6), 065209.

Williams, M., Applegate, D., Bellis, M., Meyer, C. A., Adhikari, K. P., Anghinolfi, M., ... & CLAS Collaboration. (2009). Differential cross sections and spin density matrix elements for the reaction $\gamma p \rightarrow p \omega$. *Physical Review C*, 80(6), 065208.

Martel, P., Clinton, E., McWilliams, R., Lawrence, D., Miskimen, R., Ahmidouch, A., ... & Wood, M. (2009). Nuclear targets for a precision measurement of the neutral pion radiative width. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 612(1), 46-49.

Aznauryan, I. G., Burkert, V. D., Biselli, A. S., Egiyan, H., Joo, K., Kim, W., ... & CLAS Collaboration. (2009). Electroexcitation of nucleon resonances from CLAS data on single pion electroproduction. *Physical Review C*, 80(5), 055203.

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Qian, X., Chen, W., Gao, H., Hicks, K., Kramer, K., Laget, J. M., ... & CLAS Collaboration. (2009). The extraction of ϕ -N total cross section from $d(\gamma, pK^+ K^-)n$. *Physics Letters B*, 680(5), 417-422.

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Lachniet, J., Afanasev, A., Arenhövel, H., Brooks, W. K., Gilfoyle, G. P., Higinbotham, D., ... & Lima, A. C. S. (2009). Precise Measurement of the Neutron Magnetic Form Factor G_M^n in the Few-GeV² Region. Physical review letters, 102(19), 192001.

Battaglieri, M., De Vita, R., Szczepaniak, A. P., Adhikari, K. P., Aghasyan, M., Amarian, M. J., ... & Melone, J. J. (2009). Measurement of Direct $f_0(980)$ Photoproduction on the Proton. Physical review letters, 102(10), 102001.

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Lachniet, J., Afanasev, A., Arenhövel, H., Brooks, W., Gilfoyle, G., Higinbotham, D., ... & Livingston, K. (2009). Precise measurement of the neutron magnetic form factor G_M^n [G superscript n subscript M] in the Few-GeV² [V superscript 2] region.

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McKinnon, B., Hicks, K., Baltzell, N. A., Carman, D. S., Mestayer, M. D., Mibe, T., ... & Smith, E. S. (2006). Search for the Θ^+ Pentaquark in the Reaction $\gamma d \rightarrow p K^- K^+ n$. Physical review letters, 96(21), 212001.

De Vita, R., Battaglieri, M., Kubarovsky, V., Baltzell, N. A., Bellis, M., Goett, J., ... & Park, K. (2006). Search for the Θ^+ pentaquark in the reactions $\gamma p \rightarrow K^- 0 K^+ n$ and $\gamma p \rightarrow K^- 0 K 0 p$. Physical Review D, 74(3), 032001.

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Battaglieri, M., De Vita, R., Kubarovsky, V., Guo, L., Mutchler, G. S., Stoler, P., ... & Ripani, M. (2006). Search for $\Theta^+(1540)$ Pentaquark in High-Statistics Measurement of $\gamma p \rightarrow K^- 0 K^+ n$ at CLAS. Physical review letters, 96(4), 042001.