A.Alikhanyan National Laboratory (AANL, YerPhi) request to join the Analysis Phase of the COMPASS collaboration

Bakur Parsamyan

AANL, Yerevan, INFN, Torino

March 9th 2023, CERN

Ad-hoc COMPASS Collaboration Board Meeting

A.I. Alikhanyan National Science Laboratory

Founded during in 1943 by Aliknayan brothers (Abram Alikhanov and Artem Alikhanian)

- AANL Aragats research station – one of the world-first and largest high-mountain cosmic rays research stations on Mt. Aragats (3200 m)
- AANL "ARAC" synchrotron – one of the largest USSR electron accelerators "ARAC" (1967-1991)
  - Electron synchrotron (4.5-6 GeV) operated for more than 20 years

AANL site, Yerevan, Armenia

Mt. Aragats station

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- Isotope investigation and production
- computer networking, computing

Participation in scientific programmes of

Jlab (Hall A, Hall B), DESY (H1, HERMES),
CERN-LHC (ATLAS, CMS), MAMI, KEK (Belle)

AANL Director: Prof. Ani Aprahamian
Physics Department, University of Notre Dame
(Indiana, USA)

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Observation of a Single-Spin Azimuthal Asymmetry in Semi-Inclusive Pion Electro-Production

A. Airapetian[32], N. Akopov[32], M. Amarian[24,27,32], E.C. Aschenauer[13,14,6], H. Avakian[10], R. Avakian[32], A. Avetissian[32], B. Bains[15], C. Baumgarten[22], M. Beckmann[12], S. Belostotski[25], J.E. Belz[28,29], Th. Benisch[8], S. Bernreuther[8], N. Bianchi[10], J. Blouw[24], H. Böttcher[6], A. Borissov[6,14], M. Bouwhuis[15], J. Brack[4], S. Brauksiepe[12], B. Braun[22,8], B. Bray[3], St. Brons[6], W. Brückner[14], A. Brüll[14], E.E.W. Bruins[19], H.J. Bulten[18,24,31], G.P. Capitani[10], P. Carter[3], P. Chumney[23], E. Cisbani[27], G.R. Court[17], P. F. Dalpiaz[9], E. De Sanctis[10], D. De Schepper[19,2], E. Devitsin[21], P.K.A. de Witt Huberts[24], P. Di Nezza[10], M. Düren[8], A. Dvoredsky[3], G. Elbakian[32], J. Ely[4], A. Fantoni[10], A. Fechtchenko[7], M. Ferstl[8], K. Fiedler[8], B.W. Filippone[3], H. Fischer[12], B. Fox[4], J. Franz[12], S. Frullani[27], M.-A. Funk[5], Y. Gärber[6], H. Gao[2,15,19], F. Garibaldi[27], G. Gavrilov[25], P. Geiger[14], V. Gharibyan[32], A. Golendukhin[8,22,32], G. Graw[22], O. Grebeniouk[25], P.W. Green[1,29], L.G. Greeniaus[1,29], C. Grosshauser[8], M. Guidal[24], A. Gute[8], V. Gyurjyan[10], J.P. Haas[23], W. Haeberli[18], J.-O. Hansen[2], M. Hartig[29], D. Hasch[10], O. Häusser*[28,29], F.H. Heinsius[12], R. Henderson[29], M. Henoch[8], R. Hertenberger[22], Y. Holler[5], R.J. Holt[15], W. Hoprich[14], H. Ihssen[5,24], M. Iodice[27], A. Izotov[25], H.E. Jackson[2], A. Jgoun[25], R. Kaiser[28,29,6], E. Kinney[4], A. Kisselev[25], P. Kitching[1], H. Kobayashi[30], N. Koch[8], K. Königsmann[12], M. Kolstein[24], H. Kolster[22], V. Korotkov[6], W. Korsch[3,16], V. Kozlov[21], L.H. Kramer[19,11], V.G. Krivokhijine[7], M. Kurisuno[30], G. Kyle[23], W. Lachnit[8], P. Lenisa[9], W. Lorenzon[20], N.C.R. Makins[2,15], F.K. Martens[1], J.W. Martin[19], F. Masoli[9], A. Mateos[19], M. McAndrew[17], K. McIlhany[3,19], R.D. McKeown[3], F. Meissner[6], F. Menden[12,29], A. Metz[22], N. Meyners[5], O. Mikloukho[25], C.A. Miller[1,29], M.A. Miller[15], R. Milner[19], A. Most[15,20], V. Muccifora[10], R. Mussa[9], A. Nagaitsev[7], Y. Naryshkin[25], A.M. Nathan[15], F. Neunreither[8], M. Niczyporuk[19], W.-D. Nowak[6], M. Nupieri[10], K.A. Oganessyan[10], T.G. O'Neill[2], R. Openshaw[29], J. Ouyang[29], B.R. Owen[15], V. Papavassiliou[23], S.F. Pate[19,23], M. Pitt[3], S. Potashov[21], D.H. Potterveld[2], G. Rakness[4], A. Reali[9], R. Redwine[19], A.R. Reolon[10], R. Ristinen[4], K. Rith[8], P. Rossi[10], S. Rudnitsky[20], M. Ruh[12], D. Ryckbosch[13], Y. Sakemi[30], I. Savin[7], C. Scarlett[20], A. Schäfer[26], F. Schmidt[8], H. Schmitt[12], G. Schnell[23], K.P. Schüler[5], A. Schwind[6], J. Seibert[12], T.-A. Shibata[30], K. Shibatani[30], T. Shin[19], V. Shutov[7], C. Simani[9], A. Simon[12], K. Sinram[5], P. Slavich[9,10], M. Spengos[5], E. Steffens[8], J. Stenger[8], J. Stewart[17], U. Stoesslein[6], M. Sutter[19], H. Tallini[17], S. Taroian[32], A. Terkulov[21], O. Teryaev[7,26], E. Thomas[10], B. Tipton[19], M. Tytgat[13], G.M. Urciuoli[27], J.F.J. van den Brand[24,31], G. van der Steenhoven[24], R. van de Vyver[13], J.J. van Hunen[24], M.C. Vetterli[28,29], V. Vikhrov[25], M.G. Vincter[29,1], J. Visser[24], E. Volk[14], W. Wander[8], J. Wendland[28], S.E. Williamson[15], T. Wise[18], K. Woller[5], S. Yoneyama[30], H. Zohrabian[32],

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First observation of correlations between spin and transverse momenta in back-to-back dihadron production at CLAS12

H. Avakian,[1] T.B. Hayward,[2] A. Kotzinian,[3,4] W.R. Armstrong,[5] H. Atac,[6] C. Ayerbe Gayoso,[7] L. Baashen,[8] N.A. Baltzell,[1] L. Barion,[9] M. Bashkanov,[10] M. Battaglieri,[11] I. Bedlinskiy,[12] B. Benkel,[13] F. Benmokhtar,[14] A. Bianconi,[15,16] L. Biondo,[11,17,18] A.S. Biselli,[19] M. Bondi,[20] S. Boiarinov,[1] F. Bossù,[21] K.T. Brinkman,[22] W.J. Briscoe,[23] W.K. Brooks,[13] S. Bueltmann,[24] D. Bulumulla,[24] V.D. Burkert,[1] R. Capobianco,[2] D.S. Carman,[1] J.C. Carvajal,[8] A. Celentano,[11] P. Chatagnon,[25] V. Chesnokov,[26] T. Chetry,[8,27,28] G. Ciullo,[9,29] P.L. Cole,[30] M. Contalbrigo,[9] G. Costantini,[15,16] A. D'Angelo,[20,31] N. Dashyan,[3] R. De Vita,[11] M. Defurne,[21] A. Deur,[1] S. Diehl,[22,2] C. Dilks,[32] C. Djalali,[28] R. Dupre,[25] H. Egiyan,[1] A. El Alaoui,[13] L. El Fassi,[27] L. Elouadrhiri,[1] S. Fegan,[10] A. Filippi,[4] T. Forest,[33] K. Gates,[34] G. Gavalian,[1] Y. Ghandilyan,[3] D.I. Glazier,[34] A.A. Golubenko,[26] G. Gosta,[15,16] R.W. Gothe,[35] Y. Gotra,[1] K.A. Griffioen,[7] M. Guidal,[25] H. Hakobyan,[13] M. Hattawy,[24] F. Hauenstein,[1] D. Heddle,[36,1] A. Hobart,[25] M. Holtrop,[37] C.E. Hyde,[24] Y. Ilieva,[35] D.G. Ireland,[34] E.L. Isupov,[26] H.S. Jo,[38] R. Johnston,[39] K. Joo,[2] M.L. Kabir,[27] D. Keller,[40] M. Khachatryan,[24] A. Khanal,[8] A. Kim,[2] W. Kim,[38] V. Klimenko,[2] A. Kripko,[22] V. Kubarovsky,[1] S.E. Kuhn,[24] V. Lagerquist,[24] L. Lanza,[20] M. Leali,[15,16] S. Lee,[39] P. Lenisa,[9,29] X. Li,[39] I .J .D. MacGregor,[34] D. Marchand,[25] V. Mascagna,[15,16] B. McKinnon,[34] S. Migliorati,[15,16] T. Mineeva,[13] M. Mirazita,[41] V. Mokeev,[1] R.A. Montgomery,[34] C. Munoz Camacho,[25] P. Nadel-Turonski,[1] P. Naidoo,[34] K. Neupane,[35] D. Nguyen,[1] S. Niccolai,[25] M. Nicol,[10] G. Niculescu,[42] M. Osipenko,[11] P. Pandey,[24] M. Paolone,[43,6] L.L. Pappalardo,[9,29] R. Paremuzyan,[1,37] E. Pasyuk,[1] S.J. Paul,[44] W. Phelps,[36,23] N. Pilleux,[25] O. Pogorelko,[12] M. Pokhrel,[24] J. Poudel,[24] J.W. Price,[45] Y. Prok,[24] B.A. Raue,[8] T. Reed,[8] J. Richards,[2] M. Ripani,[11] J. Ritman,[46,47] P. Rossi,[1,41] F. Sabatié,[21] C. Salgado,[48] A. Schmidt,[23,39] Y.G. Sharabian,[1] E.V. Shirokov,[26] U. Shrestha,[2] P. Simmerling,[2] D. Sokhan,[21,34] N. Sparveris,[6] S. Stepanyan,[1] I.I. Strakovsky,[23] S. Strauch,[35] J.A. Tan,[38] N. Trotta,[2] R. Tyson,[34] M. Ungaro,[1] S. Vallarino,[9] L. Venturelli,[15,16] H. Voskanyan,[3] A. Vossen,[32,1] E. Voutier,[25] D.P. Watts,[10] X. Wei,[1] R. Wishart,[34] M.H. Wood,[49] N. Zachariou,[10] Z.W. Zhao,[32] and M. Zurek[5]
(The CLAS Collaboration)

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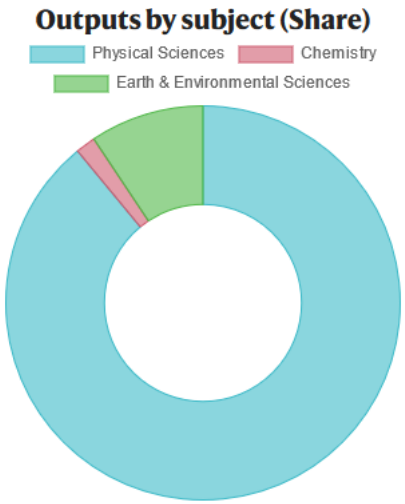
Count	Share
90	4.29

Article Count and Share for A. Alikhanyan National Laboratory (AANL) / Yerevan Physics Institute (YerPhi)



“3D-nucleon” group at AANL: established in Feb. 2023

- Aram Kotzinian
  AANL Theory division
  (Theory/phenomenology: COMPASS)

- Hrachya Marukyan
  Head of the Experimental physics division
  (GPDs: HERMES, JLab, EIC)

- Aram Movsisian
  AANL Experimental Physics division
  (GPDs: HERMES, JLab, EIC)

- Bakur Parsamyan
  AANL Experimental Physics division
  (SIDIS, DY, phenomenology: COMPASS) – *group leader*

- one graduate student
  AANL Experimental Physics division
  (GPDs)

"3D-nucleon" group at AANL: established in Feb. 2023

Study of GPDs at HERMES

Hrachya Marukyan
AANL (Yerevan Physics Institute)
(on behalf of the HERMES Collaboration)

Correlations in Partonic and Hadronic Interactions 2020 (CPHI-20)
CERN, Geneva, Switzerland, Feb. 3-7, 2020

- HERMES experiment at HERA
- Exclusive reactions and GPDs
- DVCS: measurement of azimuthal asymmetries at HERMES
- Measurements of BSAs: use of Recoil Detector information
- Exclusive meson production and GPDs
- Summary

Status of DVCS Analysis from E1-6 Data

A. Movsisyan, H. Avakian, S. Pisano

INFN-Ferrara

clas Collaboration meeting
15.06.2017

The recent results from the GlueX experiment

Hrachya Marukyan
AANL (Yerevan Physics Institute)

Yerevan, Armenia, June 5, 2018

- Physics motivation
- GlueX experiment: Apparatus & first results
  - Photoproduction by linearly polarized photons: asymmetries
  - J/ψ photoproduction near threshold
  - Observation of various known resonances
- Outlook

Overview of HERMES Results on Exclusive Processes

Aram Movsisyan
INFN Ferrara

for the HERMES collaboration
Transversity 2014

The AANL group request and the agreement

- The initiative was supported by the AANL director
- New group is formed to work on COMPASS analyses
  - Primary interest – SIDIS and GPD analyses
- The draft agreement is based on the template worked out with CERN for the UConn case
- As for the case of UConn - only the papers with significant contribution will be signed by the new members
- If the request is approved by COMPASS CB, the second round of discussions will take place at AANL to enlarge the participation
  - Preliminary positive exchanges with AANL HERMES/BELLE/JLab groups
  - The goal is to recruit new members and students

Group interest and commitments

- Particular fields of interest expressed by the A. Alikhanyan National Laboratory are the COMPASS “Generalized Parton Distributions” (GPD) programme, in particular the analysis and physics interpretation of the COMPASS data collected in 2016/2017, and the COMPASS “Transverse Momentum Dependent” (TMD) physics programme, in particular the analysis and physics interpretation of the COMPASS data collected in 2022;

- The group of the A. Alikhanyan National Laboratory shall contribute to service tasks (for example software development and maintenance, Monte-Carlo developments and simulations, data processing management, detector alignment via software) to be defined by the Analysis Coordinator and the sub-group conveners in consultation with the group.

- new COMPASS (NA58) members affiliated to the A. Alikhanyan National Laboratory are eligible to be listed as authors of publications only on analyses to which the group has actively contributed. Inclusion in the author list shall be decided by the Spokesperson(s) in consultation with the Analysis Coordinator, the sub-group conveners, and the group concerned.