

References

- [1] G.P. Lepage and S.J. Brodsky, “Exclusive processes in perturbative quantum chromodynamics”, Phys. Rev. D **22**, 2157 (1980).
- [2] R. Gupta, “Introduction to Lattice QCD”, hep-lat/9807028, (1998).
- [3] S.Gilad, W. Bertozzi, and Z.-L. Zhou, “New observables in $^2\text{H}(e, e'p)n$ ”, Nucl. Phys. **A631**, 276 (1998) and references therein.
- [4] “Opportunities in Nuclear Science: A Long-Range Plan for the Next Decade”, DOE/NSF Nuclear Science Advisory Committee, April 2002.
- [5] M. D. Mestayer *et al.*, “The CLAS Drift Chamber System”, Nucl. Inst. and Meth. **A449**, 81 (2000).
- [6] G. Adams *et al.*, “The CLAS Cerenkov Detector”, Nucl. Instr. and Meth. **A465**, 414 (2001).
- [7] E.S. Smith *et al.*, “The Time-of-Flight System for CLAS”, Nucl. Inst. and Meth. **A432**, 265 (1999).
- [8] M. Amarian *et al.*, “The CLAS Forward Electromagnetic Calorimeter”, Nucl. Instr. and Meth. **A460**, 239 (2001).
- [9] M.N. Rosenbluth, “High Energy Elastic Scattering of Electrons on Protons”, Phys. Rev. **79**, 615 (1950).
- [10] M.Diehl, “Introduction to Generalized Parton Distributions”, wwwcompass.cern.ch/compass/publications/2004_yellow/Body/diehl_new.pdf, last accessed Sep 4, 2006.
- [11] P. Schewe, B. Stein, and D. Castelvechi, “Tomography of Protons”, The American Institute of Physics News Bulletin, January 22, 2007.
- [12] PAC32 Report, JLab Program Advisory Committee, Newport News, VA, August, 2007.
- [13] J.D. Ashley, D.B. Leinweber, A.W. Thomas, and R.D.Young, “Nucleon electromagnetic form factors from lattice QCD”, Eur. Phys. J A **19** s01, 9 (2004).
- [14] C.E. Hyde-Wright and K.deJager, “Electromagnetic Form Factors of the Nucleon and Compton Scattering”, Ann. Rev. Nucl. Part. Sci. **54**, 217 (2004).
- [15] J.D. Lachniet, “A High Precision Measurement of the Neutron Magnetic Form Factor Using the CLAS Detector”, thesis, Carnegie Mellon University.
- [16] W. Brooks and M.F. Vineyard, “The Neutron Magnetic Form Factor from Precision Measurements of the Ratio of Quasielastic Electron-Neutron to Electron-Proton Scattering in Deuterium”, Jefferson Lab Experiment E94-017 1994.
- [17] G.P.Gilfoyle for the CLAS Collaboration, “Measuring Form-Factors and Structure Functions with CLAS”, HEP-MAD-2007-216, JLAB-PHY-07-760, Oct 2007.
- [18] “Office of Science Strategic Plan, February, 2004”, US Department of Energy Office of Science, February, 2004.

- [19] “Measurement of the Neutron Magnetic Form Factor at High Q^2 Using the Ratio Method in Deuterium”, G.P. Gilfoyle, M.F. Vineyard, S.E. Kuhn, J.D. Lachniet, L.B. Weinstein, K. Hafidi, M. Holtrop, M. Garcon, Jefferson Lab Experiment PR-12-07-104 (2007).
- [20] A. Klimenko, S.E. Kuhn, P.E. Bosted, K.V. Dharmawardane, G.E. Dodge, T.A. Forest, Y. Prok, G. Adams, M. Amarian, P. Ambrozewicz, M. Anghinolfi, G. Asryan, H. Avakian, H. Bagdasaryan, N. Baillie, J.P. Ball, N.A. Baltzell, S. Barrow, V. Batourine, M. Battaglieri, K. Beard, I. Bedlinskiy, M. Bektasoglu, M. Bellis, N. Benmouna, A.S. Biselli, B.E. Bonner, S. Bouchigny, S. Boiarinov, R. Bradford, D. Branford, W.K. Brooks, S. Buhltmann, V.D. Burkert, C. Butuceanu, J.R. Calarco, S.L. Careccia, D.S. Carman, B. Carnahan, A. Cazes, S. Chen, P.L. Cole, P. Collins, P. Coltharp, D. Cords, P. Corvisiero, D. Crabb, H. Crannell, V. Crede, J.P. Cummings, R. De Masi, R. DeVita, E. De Sanctis, P.V. Degtyarenko, H. Denizli, L. Dennis, A. Deur, C. Djalali, J. Donnelly, D. Doughty, P. Dragovitsch, M. Dugger, S. Dytman, O.P. Dzyubak, H. Egiyan, K.S. Egiyan, L. Elouadrhiri, P. Eugenio, R. Fatemi, G. Fedotov, R.J. Feuerbach, H. Funsten, M. Garcon, G. Gavalian, G.P. Gilfoyle, K.L. Giovanetti, F.X. Girod, J.T. Goetz, E. Golovatch, A. Gonenc, R.W. Gothe, K.A. Griffioen, M. Guidal, M. Guillo, N. Guler, L. Guo, V. Gyurjyan, C. Hadjidakis, K. Hafidi, R.S. Hakobyan, J. Hardie, D. Heddle, F.W. Hersman, K. Hicks, I. Hleiqawi, M. Holtrop, M. Huertas, C.E. Hyde-Wright, Y. Ilieva, D.G. Ireland, B.S. Ishkhanov, E.L. Isupov, M.M. Ito, D. Jenkins, H.S. Jo, K. Joo, H.G. Juengst, C. Keith, J.D. Kellie, M. Khandaker, K.Y. Kim, K. Kim, W. Kim, A. Klein, F.J. Klein, M. Klusman, M. Kossov, L.H. Kramer, V. Kubarovsky, J. Kuhn, S.V. Kuleshov, J. Lachniet, J.M. Laget, J. Langheinrich, D. Lawrence, Ji Li, A.C.S. Lima, K. Livingston, H. Lu, K. Lukashin, M. MacCormick, J.J. Manak, N. Markov, S. McAleer, B. McKinnon, J.W.C. McNabb, B.A. Mecking, M.D. Mestayer, C.A. Meyer, T. Mibe, K. Mikhailov, R. Minehart, M. Mirazita, R. Miskimen, V. Mokeev, L. Morand, S.A. Morrow, M. Moteabbed, J. Mueller, G.S. Mutchler, P. Nadel-Turonski, J. Napolitano, R. Nasseripour, S. Niccolai, G. Niculescu, I. Niculescu, B.B. Niczyporuk, M.R. Niroula, R.A. Niyazov, M. Nozar, G.V. O’Rielly, M. Osipenko, A.I. Ostrovidov, K. Park, E. Pasyuk, C. Paterson, S.A. Philips, J. Pierce, N. Pivnyuk, D. Pocanic, O. Pogorelko, E. Polli, S. Pozdniakov, B.M. Preedom, J.W. Price, D. Protopopescu, L.M. Qin, B.A. Raue, G. Riccardi, G. Ricco, M. Ripani, F. Ronchetti, G. Rosner, P. Rossi, D. Rowntree, P.D. Rubin, F. Sabatie, C. Salgado, J.P. Santoro, V. Sapunenko, R.A. Schumacher, V.S. Serov, Y.G. Sharabian, J. Shaw, N.V. Shvedunov, A.V. Skabelin, E.S. Smith, L.C. Smith, D.I. Sober, A. Stavinsky, S.S. Stepanyan, B.E. Stokes, P. Stoler, S. Strauch, R. Suleiman, M. Taiuti, S. Taylor, D.J. Tedeschi, U. Thoma, R. Thompson, A. Tkabladze, S. Tkachenko, L. Todor, C. Tur, M. Ungaro, M.F. Vineyard, A.V. Vlassov, L.B. Weinstein, D.P. Weygand, M. Williams, E. Wolin, M.H. Wood, A. Yegneswaran, J. Yun, L. Zana, J. Zhang, B. Zhao, and Z. Zhao (the CLAS Collaboration), *Phys. Rev. C* **73**, 035212 (2006).
- [21] PAC 14 Few-Body Workshop, JLab Program Advisory Committee, Williamsburg, VA, July, 1998.
- [22] S. Gilad, W. Bertozzi, and Z.L. Zhou, *Nucl. Phys. A* **631**, 276c (1998).
- [23] G.P. Gilfoyle (spokesperson), W.K. Brooks, B.A. Mecking, S.E. Kuhn, L.B. Weinstein, and M.F. Vineyard, “Out-of-Plane Measurements of the Structure Functions of the Deuteron”, CLAS Approved Analysis, http://www.jlab.org/Hall-B/general/clas_approved_analyses.htm (2003).
- [24] S. Jeschonnek and J.W. Van Orden, private communication.
- [25] H. Arenhoevel, private communication.

- [26] J.M.Laget, private communication.
- [27] PAC30 Report, JLab Program Advisory Committee, Newport News, VA, August, 2006.
- [28] “Quark Propagation and Hadron Formation”, K. Hafidi, J.Arrington, L. El Fassi, D.F. Geesaman, R.J. Holt, B. Mustapha, D.H. Potterveld, P.E.Reimer, P. Solvignon, K. Joo, M. Ungaro, G. Niculescu, I. Niculescu, W.K. Brooks, M. Holtrop, K. Hicks, T. Mibe, L.B. Weinstein, M. Wood, G.P. Gilfoyle, H. Hakobyan, Jefferson Lab Experiment PR-12-06-117 (2006).
- [29] G.P. Gilfoyle and A. Afanasev, “Radiative Corrections for Deuteron Electro disintegration”, CLAS-Note 2005-022, October 31, 2005.
- [30] A.Afanasev, I.Akushevich, V.Burkert, and K.Joo, “QED radiative corrections in processes of exclusive pion electroproduction ”, Phys.Rev., **D66**, 074004, 2002.
- [31] J.Adam, Jr., F.Gross, S.Jeschonnek, P.Ulmer, and J.W. Van Orden, “Covariant description of inelastic electron-deuteron scattering: Predictions of the relativistic impulse approximation”, Phys. Rev. C, **66**, 044003 (2002).
- [32] “Pre-Conceptual Design Report (pCDR) for The Science and Experimental Equipment for The 12 GeV Upgrade of CEBAF”, Jefferson Lab report 2004.
- [33] M.F. Vineyard, “Inclusive η Photoproduction in Nuclei”, Jefferson Lab Experiment E93-008 1993.
- [34] K. Hicks, M. Mestayer, “Measurement of the Structure Functions for Kaon Electroproduction”, Jefferson Lab Experiment E93-030 1993.
- [35] K. Hicks, S. Stepanyan, “Investigation of Exotic Baryons States in Photoproduction Reactions with CLAS”, Jefferson Lab Experiment E03-113 2003.
- [36] K. Hicks (spokesperson), “Photoproduction of the $S = 1^+$, $Z^+(1530)$ Resonance using CLAS”, CLAS Approved Analysis, http://www.jlab.org/Hall-B/general/clas_approved_analyses.htm (2006).
- [37] K. Hicks (spokesperson), “Kaon hadronization from nuclei”, CLAS Approved Analysis, http://www.jlab.org/Hall-B/general/clas_approved_analyses.htm (2006).
- [38] D.N. Spergel, R. Bean, O. Doré, M.R. Nolta, C.L. Bennett, J. Dunkley, G. Hinshaw, N. Jarosik, E. Komatsu, L. Page, H.V. Peiris, L. Verde, M. Halpern, R.S. Hill, A. Kogut, M. Limon, S.S. Meyer, N. Odegard, G.S. Tucker, J.L. Weiland, E. Wollack, E.L. Wright, “Three-year Wilkinson Microwave Anisotropy Probe (WMAP) observations: implications for cosmology, Astrophys. J. Supp., 170, 377 (2007).
- [39] M. Kamionkowski, A. Kosowsky, and A. Stebbins, “Statistics of cosmic microwave background polarization,” Phys. Rev. D, **55**, 7368 (1997).
- [40] M. Zaldarriaga and U. Seljak, “Gravitational lensing effect on cosmic microwave background polarization,” Phys. Rev. D, **58**, 023003 (1998).
- [41] J. Bock, S. Church, M. Devlin, G. Hinshaw, A. Lange, A. Lee, L. Page, B. Partridge, J. Ruhl, M. Tegmark, P. Timbie, R. Weiss, B. Winstein, & M. Zaldarriaga, Task Force on Cosmic Microwave Background Research, available at <http://arxiv.org/abs/astro-ph/0604101> (2006).

- [42] Astronomy & Astrophysics Survey Committee (National Research Council), *Astronomy & Astrophysics in the New Millennium*, National Academies Press (2001).
- [43] Committee on the Physics of the Universe (National Research Council), *Connecting Quarks with the Cosmos: 11 Science Questions for the New Century*, National Academies Press (2003).
- [44] <http://universe.nasa.gov/program/probes.html>
- [45] P. Timbie *et al.*, “The Einstein Polarization Interferometer for Cosmology (EPIC) and the Millimeter-wave Bolometric Interferometer (MBI),” to appear in Proceedings of the Fundamental Physics with CMB Workshop, UC Irvine, New Astron. Rev., 50, 999 (2006).
- [46] A.L. Korotkov *et al.*, “The millimeter-wave bolometric interferometer,” Proc. SPIE, Millimeter and Submillimeter Detectors and Instrumentation for Astronomy III; Jonas Zmuidzinas *et al.*, eds., **6275**, 285 (2006).
- [47] E.F. Bunn, “Systematic Errors in Cosmic Microwave Background Interferometry,” astro-ph/0607312, submitted to Phys. Rev. D (2006).
- [48] W. Hu, M.M. Hedman, and M. Zaldarriaga, “Benchmark parameters for CMB polarization experiments,” Phys. Rev. D, **67**, 043004 (2003).
- [49] L. Knox and Y.-S. Song, “Limit on the Detectability of the Energy Scale of Inflation,” Phys. Rev. Lett., **89**, 011303 (2002).
- [50] C.-G. Park and K.-W. Ng, “E/B Separation in Cosmic Microwave Background Interferometry,” Astrophys. J., **609**, 15 (2004).
- [51] A. Lewis, A. Challinor, and N. Turok, “Analysis of CMB polarization on an incomplete sky,” Phys. Rev. D, **65**, 023505 (2002).
- [52] E.F. Bunn, “Detectability of Microwave Background Polarization,” Phys. Rev. D, **65**, 043003 (2002). See also erratum at Phys. Rev. D, **66**, 069902 (2002).
- [53] E.F. Bunn, M. Tegmark, M. Zaldarriaga, and A. de Oliveira-Costa, “E/B decomposition of finite pixelized CMB maps,” Phys. Rev. D, **67**, 203501 (2003).
- [54] <http://crd.lbl.gov/~borrill/cmb/madcap/>
- [55] E.F. Bunn and M. White, “Mosaicking with Cosmic Microwave Background Interferometers,” Astrophys. J., **655**, 21 (2007).
- [56] J. Högbom, “Aperture Synthesis with a Non-Regular Distribution of Interferometer Baselines,” Astron. Astrophys. Supp., **15**, 417 (1974).
- [57] K. Maisinger, M.P. Hobson, and A. Lasenby, “A maximum entropy method for reconstructing interferometer maps of fluctuations in the cosmic microwave background radiation,” Mon. Not. R. Astron. Soc., **290**, 313 (1997).
- [58] The Folding@home Project. Stanford University.
<http://www.stanford.edu/group/pandegroup/cosm/>.
- [59] Rosetta@Home. Protein folding, design, and docking.
<http://boinc.bakerlab.org/rosetta/>.

- [60] QMC@Home. Quantum Monte Carlo.
<http://qah.uni-muenster.de/>.
- [61] Einstein@Home.
<http://einstein.phys.uwm.edu>.
- [62] The FightAids@home Project. The Scripps Research Institute.
<http://fightaidsathome.scripps.edu/>.
- [63] climateprediction.net. <http://climateprediction.net/>.
- [64] APS@Home. Atmospheric process simulator.
<http://www.apsathome.org/>.
- [65] SHA-1 Collision Search.
<http://boinc.iaik.tugraz.at>.
- [66] The Great Internet Mersenne Prime Search.
<http://www.mersenne.org/prime.htm>.
- [67] PrimeGrid. <http://www.primegrid.com>.
- [68] Rectilinear Crossing Number.
<http://dist.ist.tugraz.at/cape5/>.
- [69] The Search for Extraterrestrial Intelligence project. University of California, Berkeley.
<http://setiathome.berkeley.edu/>.
- [70] Xgrid. Apple Advanced Computation Group. <http://www.apple.com/acg/xgrid/>.
- [71] World Community Grid. <http://www.worldcommunitygrid.org/>.
- [72] Top500 Supercomputer Sites. <http://www.top500.org/>.
- [73] D. Szajda, B. Lawson, and J. Owen. Toward an optimal redundancy strategy for distributed computations. In *Proceedings of the 2005 IEEE International Conference on Cluster Computing (Cluster 2005)*, Boston, MA, September 2005.
- [74] M. Taufer, A. Kerstens, T. Estrada, D. Flores, and P. Teller. SimBA: a discrete event simulator for performance prediction of volunteer computing projects. In *International Workshop on Principles of Advanced and Distributed Simulation 2007 (PADS'07)*, San Diego, CA, June 2007.
- [75] T. Estrada, D. Flores, M. Taufer, P. Teller, A. Kerstens, and D. Anderson. The effectiveness of threshold-based scheduling policies in BOINC projects. In *Proceedings of the IEEE International Conference on e-Science and Grid Technologies (eScience 2006)*, Amsterdam, The Netherlands, December 2006.
- [76] M. Taufer, D. Anderson, P. Cicotti, and C.L. Brooks III. Homogeneous redundancy: a technique to ensure integrity of molecular simulation results using public computing. In *Proceedings of the 14th Heterogeneous Computing Workshop (HCW 2005)*, Denver, CO, April 2005. with IPDPS 2005.
- [77] D. Szajda, B. Lawson, and J. Owen. Hardening functions for large-scale distributed computations. In *Proceedings of the 2003 IEEE Symposium on Security and Privacy*, pages 216–224, Berkeley, CA, May 2003.

- [78] N. Christensen, R. Meyer, L. Knox, and B. Luey, “Bayesian Methods for Cosmological Parameter Estimation from Cosmic Microwave Background Measurements,” *Class. Quant. Grav.*, **18**, 2677 (2001).
- [79] M.P. Hobson and K. Maisinger, “Maximum-likelihood estimation of the cosmic microwave background power spectrum from interferometer observations,” *Mon. Not. R. Astron. Soc.*, **334**, 569 (2002).
- [80] D. Szajda, M. Pohl, J. Owen, and B. Lawson. Toward a practical data privacy scheme for a distributed implementation of the smith-waterman genome sequence comparison algorithm. In *Proceedings of the 2006 ISOC Network and Distributed System Security Symposium*, pages 253–265, San Diego, CA, February 2006.
- [81] Stephen Jenks. Supercomputer architecture: The teraflops race. February.
- [82] “Joint Statement of Principles of Undergraduate Research, Scholarship, and Creative Activities,” endorsed by NCUR Board of Governors, April 2005 and CUR governing board, June 2005, Council on Undergraduate Research, <http://www.cur.org/SummitPosition.html>, last accessed Sep 24, 2006, and references therein.
- [83] K.Greenholt and G.P.Gilfoyle, “Generating Fiducial Cuts for CLAS E5”, *Bull. Am. Phys. Soc.*, April Meeting, S.06(2005).
- [84] R.Burrell and G.P.Gilfoyle, “Momentum Corrections for the CLAS E5 Data Set”, *Bull. Am. Phys. Soc.*, April Meeting, S.07(2005).
- [85] K.Greenholt and G.P.Gilfoyle, “Fiducial Cuts on CLAS for the E5 Data Set”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, FR.00067(2005).
- [86] R.Burrell and G.P.Gilfoyle, “Momentum Corrections for the E5 Data Set”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, FR.00068(2005).
- [87] R.Burrell, K. Gill, and G.P.Gilfoyle, “CLAS Simulations of $D(\vec{e}, e'p)n$ ”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, 3A.00012(2006).
- [88] K.Greenholt and G.P.Gilfoyle, “Hadron Fiducial Cuts for the CLAS E5 Data”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, 3A.00030(2006).
- [89] F. Chinchilla, M. F. Vineyard, and G. P. Gilfoyle, ”Development and Maintenance of a Linux Computing Cluster”, poster presented at the Conference Experience for Undergraduates at the Fall 2000 Meeting of the Division of Nuclear Physics of the American Physical Society, Williamsburg, VA, Oct. 4-7, 2000.
- [90] V.Davda and G.P.Gilfoyle, “Maintenance and Upgrading of the Richmond Physics Supercomputing Cluster”, poster presented at the Conference Experience for Undergraduates at the Fall 2003 Meeting of the Division of Nuclear Physics of the American Physical Society, Tucson, AZ, Oct 30 - Nov 1, 2003.
- [91] K.Dergachev and G.P.Gilfoyle, “CLAS12 Simulation Analysis and Optimization”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, DA.00019(2007).
- [92] G.P. Gilfoyle, CLAS Collaboration, “Out-of-Plane Measurements of the Fifth Structure Function of the Deuteron”, *Bull. Am. Phys. Soc.*, Fall DNP Meeting, DF.0001(2006).

- [93] D. Jenkins, “ π^+ Acceptance Corrections for $\pi \rightarrow \mu$ Decay”, CLAS Note 2004-035, June 10, 2005.
- [94] D. Jenkins, “A Comparison of Simple and Full Acceptance”, CLAS Note 2004-043, June 10, 2005.
- [95] E.F. Bunn, “Probing the Universe on gigaparsec scales with remote cosmic microwave background quadrupole measurements,” *Phys. Rev. D*, 73, 123517 (2006).
- [96] T. Faulkner, M. Tegmark, E.F. Bunn, and Y. Mao, “Constraining $f(R)$ Gravity as a Scalar Tensor Theory,” *astro-ph/0612569* (2006).
- [97] D. Hanson, D. Scott, and E.F. Bunn, “Directionality in the WMAP Polarization Data”, *Mon. Not. of the Royal Astron. Soc.*, 381, 2 (2007).
- [98] G. Larson, E.F. Bunn, V. Kasliwal, M. McCann, “Filtering Dust Contamination from CMB Data with Wavelets and Radon Transforms”, American Astronomical Society Meeting, Washington, DC, January 2006.
- [99] E.F. Bunn, “Measurement of gigaparsec-scale perturbation modes with remote quadrupole observations,” American Astronomical Society Meeting, Seattle, WA, January 2007.
- [100] A. Korotkov, P.A. Ade, S. Ali, E. Bierman, E.F. Bunn, C. Calderon, A.C. Gault, P.O. Hyland, B.G. Keating, J. Kim, S.S. Malu, P.D. Mauskopf, J.A. Murphy, C. O’Sullivan, L. Piccirillo, P.T. Timbie, G.S. Tucker, and B.D. Wandelt, “The Millimeter-Wave Bolometric Interferometer,” American Astronomical Society Meeting, Seattle, WA, January 2007.
- [101] D. Szajda, B. Lawson, and J. Owen. Toward An Optimal Redundancy Strategy for Distributed Computations. In *Proceedings of the 2005 IEEE International Conference on Cluster Computing (Cluster 2005)*, Boston, MA, September 2005.
- [102] D. Szajda, J. Owen, B. Lawson, A. Charlesworth, and E. Kenney. An Alternate Multiplicity-2 Task Assignment Scheme for Distributed Computations. In *Proceedings of the Workshop on Scheduling and Resource Management for Parallel and Distributed Systems (SRMPDS 05)*, with *The 2005 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 05)*, Las Vegas, NV, June 2005.
- [103] J. Owen, B. Lawson, and D. Szajda. A Nonparametric Analysis for Smith-Waterman Alignment Scores. In *Proceedings of the American Statistical Association 2006 Joint Statistical Meetings*, Biometrics Section, Seattle, WA, August 2006.