Martha Constantinou

Curriculum Vitae

Current Address: Physics Department, Temple University
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Education and Training

University of Cyprus	Physics (Prof. Alexandrou)	Postdoctoral training	2008 - 2011
University of Cyprus	Physics (Prof. Panagopoulos)	PhD	2008
University of Cyprus	Physics	BS	2003

Professional Appointments

Assistant Professor	Temple University	2016 - Present
Research Associate	The Cyprus Institute	2015 - 2016
Research Associate	University of Cyprus	2012 - 2015
Visiting Lecturer	University of Cyprus	2012
Postdoctoral Fellow	University of Cyprus	2008 - 2011
Graduate Research Assistant	University of Cyprus	2005 - 2008

Faculty Awards:

1. U.S. Department of Energy Office of Science Early Career Research Program Award (FY2019)
Project: *EIC physics from Lattice QCD*
Duration: Sep. 2019 - Aug. 2024

2. 2018: Enhancement of research collaboration with Univ. of Cyprus (€4,500)

Awards & Honors

1. 2003: 2-year fellowship from the Cyprus Scholarship Foundation (IKYK)

1. Outstanding Student Award , Award of precocious Academic Record (2001), Physics Dept, University of Cyprus

2. First Class Honor in Physics (2003), Physics Department, University of Cyprus

3. Award for Best Academic Record (2003), Physics Department, University of Cyprus

4. Second prize in the competition of the Summer School on Advanced Physics, Heraklion (2005)

5. Among three best posters prize in 10^{th} European Research Conference on Electromagnetic Interactions with Nucleons and Nuclei, Paphos, Cyprus (Nov, 2015)

Membership:

- Jefferson Lab Users Group
- Electron-Ion-Collider Users Group
- American Physics Society (GHP & DNP Topical Groups)

Referee/Reviewer:

- American Physical Society journals: Physical Review Letters and Physical Review D
- Journal of High Energy Physics
- Scientific Reviewer for PRACE (Partnership for Advanced Computing in Europe)
- Proceedings of Chiral Dynamics 2015

Reviewer for Funding Agencies:

- Review panelist, U.S. National Science Foundation
- Ad hoc reviewer of U.S. Department of Energy

Service:

- Departmental Graduate admission committee, Temple University
  (2016-2019)
- Pre-Health Evaluation Committee, Temple University
  (2018-2019)
- Served as Country Team Leader of Cyprus for the IUPAP Women in Physics Working Group
  (International Union of Pure and Applied Physics)
  (2014)
- Elected student representative to the Physics Departmental Board for 2 terms
  (2001-2003)

Teaching:

Sole Instructor:

• Temple University

1. Graduate Quantum Mechanics I (Fall 2019)
2. Honors General Physics II (calculus based) (Spring 2017 - Spring 2020)
3. Honors General Physics I (calculus based) (Fall 2017 - Fall 2018)

• Visiting Lecturer at the Physics Department at the University of Cyprus:

1. General Physics II for Physicists: Electromagnetism and Thermodynamics (Spring 2012)

2. General Physics II for Engineers: Electromagnetism and Optics (Spring 2012)

Teaching Assistant:

1. General Physics I, fall term semester 2006-2007

2. Classical Physics for Engineers, spring term semester 2006-2007

3. Mathematical Methods of Physics I, fall term semester 2005-2006

4. Mathematical Methods of Physics II, spring term semester 2005-2006

5. Appointed by the University of Cyprus as a private tutor to undergraduate students from vulnerable social groups and challenging learning abilities (core courses, 2004-2006)

6. Mathematical Methods of Physics II, spring term semester 2004-2005 (Voluntarily)

7. General Physics I, fall term semester 2004-2005 (Voluntarily)

Research Interests

A. *Condensed Matter Physics*
(2001 - 2004)

1. Aharonov-Bohm effect
2. Localization and transmission properties of quantum wires network
3. Excitons in magnetic fields
4. Persistent currents and Berry's phase
5. Many body systems in electromagnetic field.

B. *Lattice Quantum Chromodynamics*
Currently, the area of interest is Lattice Quantum Chromodynamics with main focus on both perturbation theory and non-perturbative simulation.

B1. Perturbation Theory
(2004 - present)

1. Coupling constant and the beta-function
2. Additive fermion mass renormalization
3. Improved Perturbation Theory for improved lattice actions
4. Improvement of fermion propagator and bilinear operators to second order in the lattice spacing for improved fermion/gluon actions
5. Study of 4-fermi operators and improvement of non-perturbative estimates
6. Renormalization functions of fermion field and fermion bilinear operators, with up to one derivative, for a wide variety of fermion/gluon improved actions
7. Magnetic susceptibility of QCD from the lattice
8. Renormalization and mixing for the Chromomagnetic operator
9. Renormalization functions and mixing coefficients for the glue of the nucleon

10. Renormalization of Parton quasi-Distribution Functions

11. Calculation of 1-loop lattice artifacts for the renormalization functions to all orders in the lattice spacing

B2. Simulations of SU(N) Gauge Theories
(2007 - 2008)

1. Numerical Simulations of Polyakov loops, glueball mass, string tension

B3. Hadron Structure Simulations
(2008 - present)

1. Nucleon form factos in Lattice QCD

1. Pion and Kaon form factos in Lattice QCD

2. Twist-2 Generalized Parton Distributions in Lattice QCD

3. x-dependence of PDFs directly from Lattice QCD

3. Nucleon spin, mass, charged radii

4. Renormalization functions for local and twist-2 operators

4. Renormalization of Wilson line operators

5. Disconnected contributions for nucleon form factors and generalized form factors

6. Neutron electric dipole moment from Lattice QCD

Collaborations:

- Extended Twisted Mass Collaboration (ETMC)
- TMD topical Collaboration (funded by the U.S. Department of Energy)
- USQCD consortium

Collaborators:

• H. Panagopoulos (University of Cyprus, Cyprus)

• ETM Collaboration:

C. Alexandrou (University of Cyprus and Cyprus Institute, Cyprus)
J. Canbonell (UJF/CNRS/IN2P3, France)
K. Cichy (Adam Mickiewicz University)
M. Costa (University of Cyprus)
P. Dimopoulos (University of Rome "Piazzale A. Moro", Italy)
R. Frezzotti (University of Roma "Tor Vergata" and INFN, Italy)
K. Hadjiyiannakou (The Cyprus Institute)
J. Jansen (NIC,DESY, Germany)
C. Kallidonis (Stony Brook University)
G. Koutsou (Cyprus Institute, Cyprus)
V. Lubicz (University of Roma Tre and INFN, Italy)

G.C. Rossi (Fermi Center, University of Roma "Tor Vergata" and INFN, Italy)

S. Simula (University of Roma Tre and INFN, Italy)

Steffens, Fernanda (University of Bonn)

• QCDSF/UKQCD Collaboration:

R. Horsley (University of Edinburgh, UK)

H. Perlt (University of Leipzig, Germany)

P. Rakow (University of Liverpool, UK)

G. Schierholz (DESY, Germany)

A. Schiller (University of Leipzig, Germany)

J. Zanotti (University of Adelaide, Australia)

• Regensburg Group (RQCD):

G. Bali (University of Regensburg, Germany)

F. Bruckmann (University of Regensburg, Germany)

G. Endrődi (University of Regensburg, Germany)

Participation in International Schools:

1. Winter school on High Performance Computing, PRACE/LinkSCEEM, Cyprus (Jan 2010)

2. Summer School on High Energy Physics & Cosmology, Paphos, Cyprus, (Aug 2008)

3. Summer School on Lattice QCD and its applications, University of Washington, Seattle, USA (August 2007)

4. Winter School on Hadron structure and nonperturbative QCD, University of Graz, Schladming, Austria (February 2006)

5. Annual School of Advanced Physics: Computational Physics, University of Crete-ITE, Heraklion, Greece (July 2005)

Participation & **Presentations in Conferences and Workshops:**

1. 2019 Fall Meeting of the APS Division of Nuclear Physics, Mini-symposium on Lattice QCD, October 13-17, 2019, Crystal City, VA, USA

2. QCD Spin Physics: A Symposium to Honor Jacques Soffer, October 3-4, 2019, BNL, Long Island, USA

3. Parton Distributions and Lattice Calculations (PDFLattice 2019) September 25-27, 2019, Michigan State University, Kellogg Biological Station, USA

4. 9th International Conference on the "Physics Opportunities at an ElecTron-Ion Collider" (POETIC 2019), September 16-21, 2019, Lawrence National Lab, Berkeley, USA.

5. 5^{th} International Workshop on Nucleon Structure at Large Bjorken x, August 16-21, 2019, Crete, Greece

6. PINS 2019, July 17-19 2019, Stanford University, USA

7. QCD Evolution 2019, May 13-17, 2019, Argonne National Lab, USA

8. CFNS Workshop on Lattice Parton Distribution Functions, April 17-19 2019, BNL, Long Island, USA

9. LCTP Spring Symposium on Neutrino Physics, 1-3 April 2019, Ann Arbor, USA

10. Nuclear Physics Pre-Pilot Program in Quantum Computing, January 23-25, Santa Fe, USA

11. INT Program on Probing Nucleons and Nuclei in High Energy Collisions, October 15-19, 2018, Seattle, USA

12. TMD Collaboration 3^{rd} Annual Meeting, September 14-15, 2018, Duke University, North Carolina, USA

13. The 2018 Center for Frontiers in Nuclear (CFNS) Workshop on Short-range Nuclear Correlations at an Electron-Ion Collider, September 5-7, 2018, Brookhaven National Laboratory, Long Island, USA

14. Cifar Workshop "Fundamental Interactions (Quantum Information Science and Quantum Physics)", August 14-15, 2018, Toronto, Canada

15. Gordon Conference, Holderness, August 5 - 10, 2018, NH, USA

16. Electron Ion Collider User Group Meeting, Catholic University of America, July 30 - August 2, 2018, DC, USA

17. Lattice Conference 2018, Michigan State University, July 22-28 East Lansing, USA

18. Jefferson Lab Users Group Meeting, June 18 - 20, 2018, Newport News, USA

19. 27^{th} Annual Symposium of the Hellenic Nuclear Physics Society, June 8 - 9, 2018, National and Kapodistrian University, Athens, Greece

20. Light-Cone 2018, May 14-18, 2018, Jefferson Lab, Newport News, USA

21. American Physical Society April's Meeting, April 14-17, 2018, Ohio, USA

22. Lattice PDF Workshop, April 6-8, 2018, Maryland, USA

23. Transversity 2017, INFN, December 11-15, 2017, Frascati, Italy

24. 2017 Fall Meeting of the APS Division of Nuclear Physics (DNP), October 25-28, 2017, Pittsburgh, USA

25. INT Program on Spatial and Momentum Tomography of Hadrons and Nuclei, "Hadron imaging at Jefferson Lab and at a future EIC", September 25-29, 2017, Seattle, USA

26. Santa Fe Workshop on Lattice QCD, August 28 - September 2, 2017, New Mexico, USA

27. QCD Evolution Workshop, Jefferson Lab, May 22-26, 2017, Virginia, USA

28. Parton Distributions and Lattice Calculations in the LHC era Workshop, Oxford University, March 22-24, 2017, Oxford, UK

29. Precision Investigations Neutrino Sector (PINS), March 13 - 16, 2017, SLAC Institute, California, USA

30. 7^{th} Workshop of the APS Topical Group on Hadronic Physics, February 2, 2017, Washington DC, USA

31. American Physical Society (APS) "April" Meeting, January 30, 2017, Washington DC, USA

32. The 33rd Winter Workshop on Nuclear Dynamics, January 10, 2017, Utah, USA

33. 22nd International Spin Symposium, September 26-30, Champaign, USA

34. 1st TMD Collaboration Meeting, Brookhaven National Laboratory, September 23-24, 2016, New York, USA

35. 12th Conference on Quark Confinement & the Hadron Spectrum, August 28 - September 4, 2016, Thessaloniki, Greece

36. 10th European Research Conference on Electromagnetic Interactions with Nucleons and Nuclei, Paphos, Cyprus (Nov 2015). **Award for one of three best posters**

37. INT Workshop: QCD for New Physics at the Precision Frontier, Seattle, USA (September 2015)

38. 8th international Conference on Chiral Dynamics 2015, Pisa, Italy (June 2015)

39. Workshop of European Twisted Mass Collaboration (ETMC) 2015, Bonn (May 2015)

40. 5th International Conference on Women in Physics, Waterloo, Canada (August 2014) **Country Leader**

41. Lattice Conference 2014, Columbia University, New York, USA (June 2014)

42. 10th European Research Conference on 'Electromagnetic Interactions with Nucleons and Nuclei, Paphos, Cyprus (Oct 2013)

43. Lattice Conference 2013, Johannes Gutenberg University Mainz, Germany (July 2013)

44. Workshop of European Twisted Mass Collaboration (ETMC) 2013, Nicosia, Cyprus (April 2013)

45. Workshop of European Twisted Mass Collaboration (ETMC) 2012, Frankfurt, Germany (October 2012)

46. Workshop in Introduction to Learning and Teaching in Higher Education, University of Cyprus, Nicosia, Cyprus (October 2011)

47. Workshop of European Twisted Mass Collaboration (ETMC) 2011, Rome, Italy (October 2011)

48. International Europhysics Conference on High Energy Physics (HEP), Grenoble, France (July 2011)

49. Workshop of European Twisted Mass Collaboration (ETMC) 2010, Barcelona, Spain (September 2010)

50. Lattice Conference 2010, National Institute of Nuclear Physics, University of Rome III, Universities of Rome: "Tor Vergata", "Sapienza", Sardinia, Italy (June 2010)

51. Workshop of European Twisted Mass Collaboration (ETMC) 2010, Bonn, Germany (March 2010)

52. Workshop of European Twisted Mass Collaboration (ETMC) 2009, Autrans, France (March 2009)

53. Lattice Conference 2009, University of Peking, Beijing, China (July 2009)

54. Lattice Conference 2008, University of William & Mary, Virginia, USA (July 2008)

55. Lattice Conference 2007, University of Regensburg, Regensburg, Germany (July 2007)

56. Lattice Conference 2006, University of Arizona, Tucson, USA (July 2006)

57. Workshop on Computational Hadron Physics, University of Cyprus-DESY, Nicosia, Cyprus (2005)

58. Workshop on Good Practice of Teaching, University of Cyprus, Nicosia, Cyprus (2005)

59. XX Panhelenic Conference on Condensed Matter Physics and Materials, Ioannina, Greece (September 2004)

60. Third international Workshop on Electron Correlations and Material Properties, Kos, Greece (July 2004)

61. XVIII Panhelenic Conference on Condensed Matter Physics and Materials, Heraklion, Greece (September 2002)

Invited Talks in Conferences / Workshops:

1. *Overview of computations of parton distribution functions*, 2019 Fall Meeting of the APS Division of Nuclear Physics, Mini-symposium on Lattice QCD, October 13-17, 2019, Crystal City, VA, USA

2. *Lattice QCD constraints of PDF*, QCD Spin Physics: A Symposium to Honor Jacques Soffer, October 3-4, 2019, BNL, Long Island, USA

3. *quadi-GPDs from LatticeQCD*, Parton Distributions and Lattice Calculations (PDFLattice 2019) September 25-27, 2019, Michigan State University, Kellogg Biological Station, USA

4. *quasi-PDFs from Lattice QCD*, 9th International Conference on the "Physics Opportunities at an ElecTron-Ion Collider" (POETIC 2019), September 16-21, 2019, Lawrence National Lab, Berkeley, USA.

5. *Light-Cone PDFs from Lattice QCD*, 5^{th} International Workshop on Nucleon Structure at Large Bjorken x, August 16-21, 2019, Crete, Greece

6. *"Axial form factors from Lattice QCD for neutrino physics"*, PINS 2019, July 17-19 2019, Stanford University, USA

7. *"Successes and Challenges in quasi-PDFs"*, QCD Evolution 2019, May 13, 2019, Argonne National Lab, USA

8. *"Quasi-PDFs from Twisted Mass Fermions at the physical point"*, CFNS Workshop on Lattice Parton Distribution Functions, April 17-19, 2019, BNL, Long Island, USA

9. *"Axial form factors from Lattice QCD"*, The 7th LCTP Spring Symposium: Neutrino Physics, April 1-3, 2019, Ann Arbor, USA

10. *"Gauge Theories and Quantum Computing"*, QIS and Quantum Computing for Nuclear Theory, January 23-25, 2019, Santa Fe, USA

11. *"From quasi-PDfs to light-cone PDFs using lattice QCD"*, TMD Collaboration 3^{rd} Meeting, November 3, 2018, Duke University, North Carolina, USA

12. *"Electromagnetic Form Factors and the proton spin from Lattice QCD"*, Probing Nucleons and Nuclei in High Energy Collisions, October 14 - 17, 2018, Seattle, USA

13. *"Light-cone PDFs from lattice QCD"*, The 2018 Center for Frontiers in Nuclear (CFNS) Workshop on Short-range Nuclear Correlations at an Electron-Ion Collider, September 5, 2018, Brookhaven National Laboratory, Long Island, USA

14. *"The β-function of QCD from Lattice Perturbation Theory"*, Cifar Workshop, August 14, 2018, Toronto, Canada

15. *"Lattice calculations of the quarks contribution to the proton mass"*, Gordon Conference, August 5-10, 2018, Holderness, NH, USA

16. *"Spin, Mass and 3D Imaging: what can Lattice QCD teach us"*, Electron Ion Collider User Group Meeting, Catholic University of America, July 30 - August 2, 2018, DC, USA

17. *"Nucleon structure investigations from Lattice QCD"*, Jefferson Lab Users Group Meeting, June 18 - 20, 2018, Newport News, USA

18. *"Overview of hadron structure from Lattice QCD"*, Light-Cone 2018, May 14-18, 2018, JLab, Newport News, USA

19. *"Lattice Generalized Parton Distributions and Form Factors of the Nucleon"*, American Physical Society April's Meeting, April 14-17, 2018, Ohio, USA

20. *"Perturbative and non-perturbative renormalization for quasi-PDF operators"*, Lattice PDF Workshop, April 6-8, 2018, Maryland, USA

21. *"Overview of 3D structure of the nucleon from lattice QCD"*, INFN, December 11-15, 2017, Frascati, Italy

22. *"Hadron structure from lattice QCD"*, 2017 Fall Meeting of the APS Division of Nuclear Physics (DNP), October 25, 2017, Pittsburgh, USA

23. *"The proton spin and PDFs from lattice QCD"*, INT Program 2017, Washington University, September 25, 2017, Seattle, USA

24. *"Twisted Mass fermions: Advances and Results"*, Santa Fe Workshop on Lattice QCD, August 30, 2017, New Mexico, USA

25. *"Renormalization issues of quasi-PDFs"*, QCD evolution, May 23, 2017, Jefferson Lab, Virginia, USA

26. *"Nucleon Axial Form Factors from Lattice QCD*, Precision Investigations of the Neutrino Sector (PINS 2017), SLAC, Stanford University, March 13 - 17, California, USA

27. *"Renormalization of Wilson-line Operators & ETMC Results"*, Parton Distributions and Lattice Calculations in the LHC era Workshop, University of Oxford, March 22 - 24, 2017, United Kingdom

28. "Renormalization Issues on Long-Link Operators", 7^{th} Workshop of the APS Topical Group on Hadronic Physics, February 2, 2017, Washington DC, USA

29. *"Advances in hadronic structure from Lattice QCD"*, American Physical Society (APS) "April" Meeting, January 30, 2017, Washington DC, USA

30. *"Lattice Nucleon GPDs & Form Factors"*, 22^{nd} International Spin Symposium, September 26, Champaign, USA

31. *"New Physics Searches from Nucleon Matrix Elements in Lattice QCD"*, 12^{th} Conference on Quark Confinement & the Hadron Spectrum, September 3, 2016, Thessaloniki, Greece

32. *"Recent progress in nucleon charges from Lattice QCD"*, Institute for Nuclear Theory (INT) workshop "QCD for New Physics at the Precision Frontier" (part of the INT program "Intersections of BSM Phenomenology and QCD for New Physics Searches"), Sept 28 - Oct 2, 2015 Seattle, USA

33. *"Hadron Structure from Lattice QCD"*, The 8$^{\text{th}}$ International Workshop on Chiral Dynamics 2015, June 29 - July 3, 2015 Pisa, Italy

34. *"Hadron Structure"*, 32$^{\text{nd}}$ International Symposium on Lattice Field Theory (LATTICE 2014), June 23 - June 28, 2014 New York, USA

Invited Seminars / Colloquiua:

1. *"Successes and Challenges in accessing light-cone PDFs using Lattice QCD"*, Lawrence Berkeley National Laboratory, May 21, Berkeley, USA

2. *"EIC Physics from Lattice QCD: Proton mass & spin"*, Colloquium, Argonne National Lab, May 10, 2019, Chicago, USA

3. *"Light-cone PDFs from Lattice QCD"*, Ohio State University, February 20, 2019, Columbus, USA

4. *"Light-cone PDFs from Lattice QCD"*, Institute for Nuclear Theory, August 23, 2018, Seattle, USA

5. *"Light-cone PDFs from Lattice QCD"*, Jefferson Lab, Theory Group Seminar, April 30, 2018, Newport News, USA

6. *"Nucleon Spin and Momentum Decomposition Using Lattice QCD"*, Rutgers University, February 5, 2018, New Jersey, USA

7. "Nucleon Spin and Momentum Decomposition Using Lattice QCD", Opening of joined seminars at Brookhaven National Lab and Center for Frontiers in Nuclear Science (CFNS) of Stony Brook University, Nov 2, 2017, Long Island, NY, USA

8. "The proton spin puzzle from Lattice QCD", LNS colloquium at the Massachusetts Institute of Technology, April 3, 2017, Cambridge, MA, USA

9. "The proton spin puzzle from Lattice QCD", Physics Division seminar, Argonne National Laboratory, March 6, 2017, Illinois, USA

10. *"Simulating the visible world"*, Colloquium at College of William & Mary, February 18, 2016, Williamsburg, USA

11. *"Overview of Hadron Structure from Lattice QCD"*, Seminar at Jefferson Laboratory, February 17, 2016, Newports News, USA

12. *"Simulating the visible world"*, Colloquium at Temple University, February 3, 2016, Philadelphia, USA

13. *"Nucleon Structure from Lattice QCD"*, Helmholtz Institute, University of Bonn, June 2^{nd}, 2015, Bonn, Germany

Invited Lectures:

1. "Quantum Chromodynamics and Renormalization", ECT* Doctoral Training Program "Effective Field Theory Techniques", June 24-28, Trento, Italy

2. "Lattice QCD: From the 12 GeV to the Exascale & EIC Eras", Hampton University Graduate Studies Program (HUGS 2019), June 3 - 5, 2019, Jefferson Lab, Newport News, USA

3. "What in the world are quasi-PDFs", TMD Collaboration Summer School, Temple University, June 22 - 28, 2017, Philadelphia, USA

4. *"How to write a successful grant proposal and CV presentation"*, Pre-Conference for 10^{th} European Research Conference on Electromagnetic Interactions with Nucleons and Nuclei, October 31^{st} - November 7^{th}, 2015 Paphos, Cyprus

Invitations to upcoming Colloquia, Seminars and Conferences:

1. *Axial Form Factors for Neutrino Physics*, Seminar Invitation at Virginia Tech's Center for Neutrino Physics, November 6, 2019, Blacksburg, VA, USA

Conferences & **Advanced Schools Organization:**

1. Lattice Conference 2021, July 26 - 31, MIT, Boston, USA.

2. QCD Evolution Workshop, April 27 - May 1, 2020, UCLA, Los Angeles, USA.

3. "QCD real-time dynamics and inverse problems", Amherst Center for Fundamental Interactions, dates TBD, University of Massachusetts, USA.

4. Convener for Lattice QCD session of New Φysics Φenomena 2020, September 24 - 30, 2020, Crete, Greece.

5. Convener for Section B (light quarks) of "Quark Confinement and the Hadron Spectrum", July 27- August 1, 2020, University of Stavanger, Norway.

6. 1st CFNS Summer School on the Physics of the Electron Ion Collider, Stony Brook University, Jul 31 - Aug 9, 2019, USA

7. QCD Evolution Workshop, May 13-17, 2019, Argonne National Laboratory, Chicago, USA

8. 3^{nd} TMD Collaboration Meeting, Duke University, November 2-3, 2018, Durham, USA

9. QCD Evolution Workshop, May 20-24, 2018, Santa Fe, USA

10. 2^{nd} TMD Collaboration Meeting, Temple University, June 29 - 30, 2017 Philadelphia, USA

11. 1^{st} TMD Collaboration Advanced Summer School, Temple University, June 22 - 28, 2017 Philadelphia, USA

12. 7^{th} International Conference on Physics Opportunities at an Electron-Ion-Collider, Temple University, November 14-18, 2016 Philadelphia, USA

13. Workshop of European Twisted Mass Collaboration (ETMC), University of Cyprus, April 2013, Nicosia, Cyprus

International Scientific Advisory Committee:

1. Light-Cone 2019, September 16-20, 2019, Ecole Polytechnique in Palaiseau, France.

2. 5th International Workshop on Nucleon Structure at Large Bjorken x, August 16-21, Crete, Greece.

3. QCD Evolution Workshop, May 13-17, 2019, Argonne National Laboratory, Chicago, USA.

4. Light-Cone 2018, May 14-18, 2018, JLab, Newport News, USA

5. QCD Evolution Workshop, May 20-24, 2018, Santa Fe, USA

Graduate and Postdoctoral Advisees

1. Co-advisor for graduate students at University of Cyprus:
   - Fotos Stylianou (2010-2012)
   - M. Costa (2013-2015)
   - C. Kallidonis (2011)

2. Undergraduate Advisees:
   - Samvardhan Vishnoi (Temple University, Summer 2019,)
   - Akhil Mithran (Indian Institute of Science Education and Research, Pune, Summer 2019)

3. Graduate Advisees at Temple University:
   - C. Lauer (2016-2019)
   - Joseph Delmar (2019 -)

4. Postdoctoral Advisees at Temple University:
   - Dr. Derek Horkel (2016-2017)
   - Dr. Dean Howarth (2016-2017)

Outreach Activities:

1. *"Simulating the Visible World"*, talk given to the College of Science and Technology Research Mixer event, Temple University, March 27, 2019, Philadelphia, USA

2. *"Simulating the Visible World"*, talk given to graduate students, Temple University, February 28, 2018, Philadelphia, USA

3. *"Understanding the Visible World with SuperComputers"*, talk given to High school students, Temple University, December 7, 2016, Philadelphia, USA

4. Talk with subject *"Special Relativity"*, Physics Summer School for high-school students organized by the Physics Teachers Association and Union of Cypriots Physicists, June 24 - June 29, 2013, Agros, Cyprus

Funding ID:

I. **Role: Principal Investigator**

A. Development of Human Resources in Research

1. 09/01/2019 - 08/31/2024: U.S. Department of Energy Office of Science Early Career Research Program Award for the project "EIC physics from Lattice QCD"
   Grant No. TBA, **Award: $750,000**

2. 08/01/2017 - 07/31/2020: Funding from the National Science Foundation of USA for the project "A new Era for Lattice QCD: Unveiling the Mysteries of a Proton".
   Grant No. PHY-1714407, **Award: $240,000**

3. 07/01/2018 - 06/30/2019: 1-year Supplement funding from the National Science Foundation of USA for the project "A new Era for Lattice QCD: Unveiling the Mysteries of a Proton".
   Grant No. PHY-1841963, **Award: $10,000**

4. 10/01/2018 - 09/30/2019: Contract with Argonne National Laboratory for the project "Hadron Form Factors using state-of-the-art simulations in Lattice QCD".
   Award: $42,037

B. Computational Resources in Research

1. 07/01/2019 - 06/30/2020: computer time allocation from USQCD for the project "Quasi-GPDs from Lattice QCD",
   Award: resources: 6.5 M Skylake hours (BNL computational resources)

2. 10/01/2018 - 09/30/2019: computer time allocation from XSEDE SuperComputing Center (funded by National Science Foundation) for the project "Nucleon Form Factors from Lattice QCD for Physics Within and Beyond the Standard Model".
   Grant No. TG-PHY170022, **Award: resources value ∼$110,887**

3. 07/01/2017 - 06/31/2018: computer time allocation from XSEDE SuperComputing Center (funded by National Science Foundation) for the project "Nucleon Form Factors from Lattice QCD for Physics Within and Beyond the Standard Model".
   Grant No. TG-PHY170022, **Award: resources value ∼$125,695**

II. Role: Funded Researcher

A. Development of Human Resources in Research

1. 2012: 3-year funding from the Research Promotion Foundation of Cyprus for the project "QCD with improved actions".
   (Project Coordinator: Prof. H. Panagopoulos, Funded Researcher: (Ranked first)

2. 2009: 3-year funding from the Research Promotion Foundation of Cyprus for the project "Hadron Structure in the Chiral Regime".
   (Project Coordinator: Prof. C. Alexandrou, Funded Researcher: M. Constantinou, Proposal Nr: ΤΕΧΝ/ΘΕΠΙΣ/0308/17, **Award: 120,000 Euros**)

3. 2005: 3-year funding from the Research Promotion Foundation of Cyprus for the project "Asymptotic Freedom and Quark Confinement".
   (Project Coordinator: Prof. H. Panagopoulos, Funded Researcher: M. Constantinou, Proposal Nr: ΕΝΙΣΧ/0505/45, **Award: 70,000 Euros**)
   (Ranked second)

4. 2004: 1-year funding from A.G Leventis Foundation for the project "Novel Electronic States and Quantum Phase Transitions Induced by a Magnetic Field in Two-Dimensional Nanostructures".
   (Project Coordinator: Prof. K. Moulopoulos, Funded Researcher: M. Constantinou)

III. Role: Research Participant

A. Development of International Collaboration

1. 2012: 1-year funding from the Research Promotion Foundation of Cyprus for hosting an experienced researcher from abroad under the project "Nucleon σ-terms with

twisted mass fermions".
(Project Coordinator: Prof. C. Alexandrou, Experienced Researcher: K. Jansen, Proposal Nr: ΠΡΟΣΕΛΚΥΣΗ/ΠΣ/0311/16, **Award: 45,500 Euros**)

2. 2011: 2 year traveling funding from the Research Promotion Foundation of Cyprus for the joined project "Structure Hadron from N_f=2+1+1 Twisted Mass Fermions" with Laboratoire de Physique (Grenoble) and the University of Paris XI.
(Project Coordinator: Prof. C. Alexandrou, Proposal Nr: DIAKRATIKES/KY-GA/0310, **Award: 5,000 Euros**).

3. 2008: 2 year traveling funding from the Research Promotion Foundation of Cyprus for the joined project "Hadron Structure from Twisted Mass Fermions" with Laboratoire de Physique (Grenoble) and the University of Paris XI.
(Project Coordinator: Prof. C. Alexandrou, **Award: 5,000 Euros**).

B. Development of Research Infrastructures

1. 2011: 4-year project "Research Unit for Nanostructured Material Systems (Cy-Tera)" for infrastructure for High Performance Computing, funded by the Research Promotion Foundation of Cyprus and the European Union.
(Project Coordinator: Prof. C. Alexandrou, **Award: 1,110,000 Euros**).
(Ranked first)

Publications:

Co-author in 53 original papers in international peer-reviewed Scientific Journals (Physical Review Letters, Physics Letters A, Physics Letters B, Physical Review B, Physical Review D, Journal of High Energy Physics (JHEP), Computer Physics Communications), 1 invited review article, 1 community white paper and 52 publications in the proceedings of major International Conferences. These publications have received a total of more than 2150 citations based on SPIRES (and Google scholar for the publications in Condensed Matter Physics). A complete list of publications is provided below.

LIST OF PUBLICATIONS

Publications in peer-reviewed scientific journals:

A. Lattice Quantum Chromodynamics

The rules of the collaboration is to list authors' names in publications alphabetically.

1. *"The nucleon axial, tensor and scalar charges and ?-terms in lattice QCD"*, C. Alexandrou, S. Bacchio, M. Constantinou, K. Hadjiyiannakou, K. Jansen, G. Koutsou, A. Vaquero Aviles-Casco, Physical Review Letters, under review, [arXiv:1909.00485].
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5. *"Proton and neutron electromagnetic form factors from lattice QCD"*, C. Alexandrou, S. Bacchio, M. Constantinou, J. Finkenrath, K. Hadjiyiannakou, K. Jansen, G. Koutsou, A. Vaquero Aviles Casco, Physical Review D 100, 014509 (2019), [arXiv:1812.10311].
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11. *"Topological susceptibility from twisted mass fermions using spectral projectors and the gradient flow"*, C. Alexandrou, A. Athenodorou, K. Cichy, M. Constantinou, D. P. Horkel, K. Jansen, G. Koutsou and C. Larkin, Physical Review D 97, 074503 (2018), [arXiv:1709.06596].
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1. *"Two interaction charged particles in an Aharonov-Bohm ring: Bound state transitions, symmetry breaking, persistent currents and Berry's phase"*, K. Moulopoulos, M. Constantinou, Physical Review **B70** (2004) 235327.

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