13 August 2021

ATHENA SPOKESPERSON ELECTION MANAGEMENT STATEMENT

Silvia Dalla Torre and Bernd Surrow

Dear ATHENA Colleagues,

This statement is written in the form of a letter. It emphasizes our understanding of the role of SpokesPersons (SP) to be primarily based on a **continuous dialog with all collaborators**, taking advantage of the critical and positive input from you. The letter addresses multiple points, highlighting several items explicitly.

WHY OUR CANDIDACY?

We both (Silvia and Bernd) have been nominated to serve as SpokesPerson (SP). We are **grateful for the confidence and encouragement** that comes from these nominations. We are both members of the ATHENA Coordination Committee, which serves the collaboration as a temporary steering committee. We have been actively collaborating since last March on all ATHENA matters. It is, therefore, natural to collaborate instead of running for the spokesperson office independently. We profit from a close collaboration over the last months, providing a solid basis for the tasks ahead of us. **With our professional affiliations, we represent two critical institutional belongings for ATHENA with both a domestic and international component.**

We are very proud of having reached a critical milestone of establishing an endorsed charter. Following the Charter, we have decided to form our Spokesperson team as follows:

- SP: Silvia Dalla Torre
- Deputy-SP: Bernd Surrow

Even though we had the opportunity to meet several ATHENA collaborators in the past, some groups or individuals might not know us personally. We are therefore sharing our CV's with this statement, providing a complete introduction.

WHY OUR DEDICATION TO ATHENA?

We strongly believe in the ATHENA proposal strategy explicitly mapped to the requirements of the "Open Call for Collaboration Proposals for Detectors at the Electron-Ion Collider" (https://www.bnl.gov/eic/CFC.php). ATHENA is reflected by a natural progression of the Yellow Report (YR) activities. Critical and novel ingredients of the ATHENA approach include, e.g., modern software tools, new barrel calorimetry concepts, deeper insight into the tracking configuration and performance, integration of the forward RICH subsystem, and several other further developments. ATHENA also has a rich portfolio of additional options beyond a minimal detector configuration, particularly PID as TRD, miniTPC with gridpix sensors, LAPPDs, which can be considered for the initial detector setup or subsequent detector upgrades.

OUR WORK IN THE NEXT MONTHS

The **main task of the SP and deputy-SP in the following months** is to take advantage of the experience of members of the ATHENA collaboration and bring it to full maturity, presenting a convincing Proposal and subsequently defending it during the evaluation phase early next year. For this purpose, we intend to make use of an organizational structure that has already been implemented that has allowed us to progress so far:

- Skill and dedication of the **coordination committee**. If they accept, they are the ideal members of the SP office, which will assist us in leading the collaboration, avoiding any unnecessary interruption on the path toward completing the proposal.
- Advanced work by the **Proposal Committee** with its three subgroups (costing, integration, editing), which will be preserved without modifications.
- WGs and their conveners are providing the basis for ATHENA to progress further. No modifications are foreseen.
- The **IB** represents a strong government body of ATHENA. In a couple of weeks, this body will gain strength thanks to its chair and deputy; we see the IB chair and deputy as one of the primary communication channels with the collaboration and essential guidance for the SP office.
- Frequent **collaboration meetings**, providing a direct link to the entire ATHENA community. We will dedicate substantial attention to report the progress of all activities during those meetings.

Among the most relevant action items that we plan for the following months, we would like to mention:

- **Solicit dialog with Institutions (worldwide)** to present the ATHENA effort with the goal in mind to increase the number of groups joining ATHENA and providing an enhanced engagement of individual groups in the ATHENA activities.

- Develop the case of financial support together with the EIC management and the DOE Office of Nuclear Physics for institutions engaged in the EIC project during the present phase, in particular to support early-career collaborators and strengthen R&D efforts.
- Emphasize and strengthen an **open and inclusive collaborative atmosphere for the entire EIC community** to guarantee the success of the EIC project in general.

We believe that the **working atmosphere in ATHENA** is sound and collaborative, guaranteed by the Preamble in the ATHENA charter. We will engage with the IB about establishing a Diversity & Inclusion Committee to be added to the Charter.

BEYOND THE PROPOSAL APPROVAL

The outcome of the review process in spring 2022 is unknown to all of us. We will not engage in assumptions about our specific actions after the review process. We guarantee our dedication and to proceed along the guidelines that inspire the work foreseen in the next months, concerning the proposal preparation, submission, and presentation.

We are looking forward to your comments and suggestions at the open candidate presentation session.

Sincerely,

Silvia and Bernd

Silvia DALLA TORRE – CV *(updated: August 2021)*

- Born in Trieste, Italy, on April 12, 1955
- Nationality: Italian
- Mailing address:
  INFN, Sezione di Trieste
  Via Alfonso Valerio 2
  I - 34127 Trieste, Italy
- E-mail: Silvia.DallaTorre@ts.infn.it

Career:
1981 – 1990: Ricercatore INFN
1990 – 2002: Primo Ricercatore INFN
2002 – present: Dirigente di Ricerca INFN
2000: Scientific Associate, CERN

Membership in Scientific Committees:

- 2000 – 2003 Member of SPS and PS experiments Committee SPSC, http://committees.web.cern.ch/Committees/spsc/) at CERN, reviewing fix target experiments at SPS and PS;
- 2003 – 2008 Member of Commissione Scientifica Nazionale I (CSNI, https://web.infn.it/csn1/) of INFN, reviewing INFN-supported experiments in particle physics;
- 2005 – 2008 Member of Large Hadron Collider Committee (LHCC) at CERN, LHCC, http://committees.web.cern.ch/committees/lhcc/), reviewing the experiments at the LHC;
- 2017-present - European Committee for Future Accelerators (ECFA, https://ecfa.web.cern.ch/) Detector Panel (http://ecfa-dp.desy.de/), reviewing the detector R&D effort for future projects;
- 2020-2021 – member of the Detector R&D Roadmap Panel, as component of the Coordinator Panel; the Panel assists ECFA in organizing the European Roadmap for Detector R&D, as requested by the approved decisions of the EPPSU process.

Research activity:
1979 – 1983: Nucleon-Nucleon experiment at Saclay-Saturne II
1983 – 1986: PS156 experiment at CERN-LEAR
1985 – 1991: PS201-PS206 experiments at CERN-LEAR
1990 – 1998: NA47 (SMC) experiment at CERN-SPS
1996 – present: NA58 (COMPASS) experiment at CERN-SPS
2008 – present: R&D for MPGD (MicroPattern Gaseous Detector)-based photon detectors

2008 – present: RD51 experiment at CERN
2017 – present: R&D for RICH detectors at the future Electron-Ion Collider in USA
January 2019 – present: EIC_NET, preparatory activity of INFN experimentalists for the experiments at EIC

Main research responsibilities:
1. Project coordination (design, construction, operation, performance) of detectors of increasing size and complexity:
   - the antineutron detectors (PS201, PS206) including 400 m^2 of limited streamer tubes
   - MWPCs for the muon beam polarimeter (SMC)
   - RICH-1, a large-size gaseous focusing Ring Imaging CHerenkov (RICH) detector (COMPASS)
   - the R&D dedicated to novel detectors of single photons based on MPGD-technologies
2. Member of the COMPASS Technical Board (1997-2008).
3. Chairperson of the RD51 Collaboration Board (2008 - 2015); RD51 is a CERN-based technological collaboration dedicated to MicroPattern Gaseous Detectors (MPGD) (http://rd51-public.web.cern.ch/rd51-public/);
4. RD51 co-spokesperson (2016 –present).
5. 2004 – present: Spokesperson of 4 work packages within
   - the European Community Integrated Infrastructures Initiative HP (FP6);
   - the European Community Integrating Activities HP2 (FP7);
   - the European Community Integrating Activities HP3 (FP7);
   - the European Community Research and Innovation Actions (RIA) AIDA2020 (H2020);
6. 2017-present: project leader of the task "Further development of hybrid MPGDs for single photon detection" within the Consortium eRD6 of the Generic R&D program for the Electron Ion Collider (EIC) (https://wiki.bnl.gov/conferences/index.php/EIC_R%25D);
7. January 2019-present – PI of the INFN project EIC_NET, to prepare the INFN participation to the future collaborations for the experiments at EIC;
8. 2020-2021: convener of the Detector Working Group of the EIC User Group Yellow Report Initiative to advance the state and detail of the documented physics studies and detector concepts in preparation for the realization of the EIC (http://www.eicug.org/web/content/yellow-report-initiative).
9. 2021: member of the Coordination Committee of the ATHENA Collaboration (https://athena-eic.org/), preparing a proposal for the Call for Collaboration Proposals for Detectors at the Electron-Ion Collider.

Publications:

- More than 190 articles in international journals with referee
- Sum of the Times Cited: more than 6800
- Sum of Times Cited without self-citations: more than 5800
- H index: 37

Funding ID:

- Project: RICH-1 COMPAS, Role: project coordinator, Period: 1996-2017, Funding source: INFN, Grant to COMPASS-INFN: 6800 k €.
- Project: HP - JRA9 (Ring Imaging Cherenkov Counters for particle Identification), Role: spokesperson, Period: 2004-2008, Funding source: European Community (FP6), Grant: 968 k €.
- Project: HP2 - WP17 (Frontier Photon Detectors for Cherenkov Counters), Role: work package spokesperson, Period: 2009-2011, Funding source: European Community (FP7), Grant: 111 k €.
- Project: HP3 - WP18 (Frontier Photon Detectors), Role: work package spokesperson, Period: 2012-2014, Funding source: European Community (FP7), Grant: 113 k €.
- Project: AIDA2020 - WP13 (Innovative gas detectors), Role: work package spokesperson, Period: 2015-2019, Funding source: European Community (H2020), Grant: 806 k €.
- Project: ERD6 Consortium application to the Generic R&D program for EIC, task: "Further development of hybrid MPGDs for single photon detection synergistic to TPC read-out sensors", Role: task project leader, period: 2017-present, Grant: 228 k $.
- Project: AIDAinnova – WP7 (Gaseous detectors), Role: work package spokesperson, Period: 2021-2026, Funding source: European Community (H2020), Grant: 1091 k €.

Management of research Institutions:

- 2009 – 2015: Director Sezione INFN di Trieste; this role implies:
    - Member of the INFN Directorate Board; INFN: 4 national laboratories, 20 local sections, 3 national technical centres; 2000 units of INFN personnel, 3000 associated scientists; funding: 240 M euro/Y plus about 50 M euro/y for specific projects;
    - Sezione di Trieste: 270 units of INFN personnel and associated scientists, 3 M euro/y not including personnel costs.

Other activities:

1. On regular basis, referee for the journals NUCLEAR INSTRUMENTS & METHODS A, JOURNAL OF INSTRUMENTATION (JINST) and THE EUROPEAN PHYSICAL JOURNAL PLUS;
2. JINST editor since 1 October 2013;

3. Referee of the experiments OPERA (for SPSC), ATLAS (for INFN), LHCb and TOTEM (for LHCC), referee for the "CMS TECHNICAL DESIGN REPORT FOR THE MUON ENDCAP GEM UPGRADE - CERN-LHCC-2015-012; CMS-TDR-013; 30 September 2015" (for LHCC);
4. Chairperson of the CVI (Comitato di Valutazione Interno, Internal Evaluation Committee) of Centro Fermi (2016-present);
5. On regular basis, member of the Scientific Advisory Committees in conferences dedicated to nuclear and particle instrumentation;
6. Chairperson of the Local Organising Committee of RICH 2007 (Trieste, 2007, http://rich2007.ts.infn.it/) and editor of the proceedings;
7. Chairperson of the Local Organising Committee of SNRI 2010 (Trieste, 2010, http://agenda.infn.it/conferenceDisplay.py?confId=2592);
8. Chairperson of the Local Organising Committee of MPGD2015 (Trieste, 2015, http://mpgd2015.ts.infn.it/) and editor of the proceedings;
9. Co-chairperson of the Local Organising Committee of EICUG2017 (Trieste, 2017, http://eicug2017.ts.infn.it/).

Prof. Bernd Surrow - CV

Research Interests

QCD (Hadron/Jet production) and electro-weak (W/Z production) physics in high-energy collider experiments / Proton structure / Parton momentum and spin distributions / Particle physics detector development (Micro-pattern detectors including GEM and MicroMegas detectors and Silicon detectors) / Phenomenology of deep-inelastic scattering and low-x physics (Color-Dipole model)

Education

Ph.D. Degree in Physics **April 1998**

University of Hamburg, Hamburg, Germany

Thesis topic: *Measurement of the Proton Structure Function* $\mathbf{F}_2$ *at low* $\mathbf{Q}^2$ *and very low* $\mathbf{x}$ *with the ZEUS Beam Pipe Calorimeter at HERA* ('summa cum laude')

Awarded the *1998 DESY Laboratory Ph.D. Thesis Prize*, Hamburg, Germany and the *1998 University of Hamburg Ph.D. Thesis Prize*, Hamburg, Germany

Diploma in Physics **January 1995**

Masters Degree recognized as German Diploma Degree

Department of Science and Research of the State of Hamburg, Hamburg, Germany

Masters Degree in Physics **December 1993**

Stony Brook University, Stony Brook, NY

Thesis topic: *Performance of a Prototype RICH detector using a CsI Photocathode Readout for the PHENIX experiment at RHIC*

Vordiplom in Physics (Bachelor's degree in Physics) **November 1991**

University of Würzburg, Würzburg, Germany

Employment / Experience

Temple University, Department of Physics, Philadelphia, PA

Professor of Physics and Chair **2021 – Present**
Director Center for Online and Digital Learning **2020 – Present**

Professor of Physics and Vice Chair **2016 – 2021**
Associate Professor of Physics **2012 – 2016**

Massachusetts Institute of Technology, Department of Physics, Cambridge, MA

Associate Professor of Physics **2009 – 2011**

Assistant Professor of Physics **2004 – 2009**

Research: STAR experiment - Polarized proton-proton collider program at RHIC

- Gluon polarization studies based on jet and hadron production measurements and quark / antiquark polarization studies based on W boson production measurements suggesting non-zero degree of gluon polarization and asymmetry of anti-u and anti-d quark polarization.
- Application of various theory based computing tools to the study of the proton structure including physics cases studies such as forward di-jet production probing the gluon polarization at low x.
- Design, assembly and operation of a new tracking system for the STAR experiment at RHIC.

Research: Development of novel micro-pattern tracking detectors based on a dedicated Electron-Ion Collider (EIC) R&D DOE grant.

- Setup of dedicated R&D laboratory at Temple University including a state-of-the art clean room and detector lab.
- Successful development of micro-pattern detector components based on a grant by the DOE SBIR program.
- Dedicated prototyping work with long-term applications at a future collider experiment at an EIC facility.

Research: Physics case studies of electron-proton collisions for a future Electron-Ion Collider (EIC) program using archived ZEUS data

- Successfully developed reconstruction software to study strange-quark proton content using charm-associated W boson production.
- Prepared publication of first measurement of charm-associated W boson production using the ZEUS detector at HERA ('Charm production in charged current deep inelastic scattering at HERA').

Research: DarkLight experiment - A' search experiment at JLab

- Award of NSF MRI grant (Development of the Phase-I DarkLight experiment).
- Design and R&D of a proton recoil silicon detector.

Leadership: Principal investigator of the MIT and Temple University polarized proton-proton collider program at RHIC and detector R&D program

- Launched a new research program at MIT and Temple University studying the proton spin structure in polarized proton-proton collisions at RHIC with outstanding reviews funded by a DOE Nuclear Physics grant.
- Launched a new dedicated R&D program at Temple University focusing on the development of novel micro-pattern detectors profiting from the Science Education and Research Center at Temple University with outstanding reviews by the International EIC R&D review committee funded by a dedicated DOE EIC R&D grant.
- Coordinated the STAR Experiment involving approx. 450 collaborators as co-spokesperson, the STAR spin physics working group as physics analysis coordinator and the detector design studies and simulations for a future forward upgrade program and a future Electron-Ion Collider facility.
- Initiated the STAR tracking upgrade effort profiting from a dedicated proposal to transform the MIT Bates Laboratory into a Research and Engineering Laboratory.
- Project manager for the STAR Intermediate Silicon Tracker (IST) (2006 – 2011) and the STAR Forward GEM Tracker (FGT) (Since 2008).
- Advised 9 MIT Ph.D. students (Graduated), 5 Temple University Ph.D. students, 6 MIT undergraduate students, 9 Temple University undergraduate students and supervised 9 post-docs and 8 research staff members.

Coursapp Inc. / KUDU, Santa Monica, CA

Consultant **2018 – Present**

Education: Development of online teaching material for undergraduate and graduate courses.

Passport Systems Inc., Billerica, MA

Consultant **2009 – 2011**

Research: Investigated options for cargo scanning techniques

- Prepared a prototype detector arrangement based on triple-GEM technology.
- Explored options for a high-density readout system.

Brookhaven National Laboratory, Upton, NY

Goldhaber Fellow **2002 – 2003**

Research: STAR experiment - Polarized proton-proton collider program at RHIC

- Initiated the polarized proton-proton collider program at RHIC spearheaded by the local BNL group.
- Successfully designed, assembled and maintained a new trigger and forward detector system.
- Independent root-based analysis of the first asymmetry measurement at RHIC of the transverse single-spin asymmetry of forward neutral pion production.

DESY Laboratory, Hamburg, Germany

Tenured Research Staff **2001**

Research: ZEUS experiment - Electron-proton collider program at HERA / Particle physics Theory

- Investigated the proton structure at low x based on a phenomenological model and QCD analysis using theory computing tools and algorithms.
- Installed and commissioned the ZEUS Silicon Vertex Detector.
- Formulated the GVD/CDP (generalized vector-dominance/color-dipole picture) model.

Leadership: Co-project manager of the ZEUS Silicon Vertex Detector.

CERN, Meyrin, Switzerland

CERN Fellow **1998 – 2000**

Research: OPAL experiment - Electron-Positron collider program at LEP

- First measurements of the total $\gamma\gamma$ and $\gamma^*\gamma^*$ cross-sections at LEP.
- Developed extensive calorimetry based reconstruction software and Monte Carlo simulations.
- Online monitoring of LEP luminosity using Bhabha scattering at OPAL.

Leadership: OPAL Run Coordinator and Two-photon Physics Analysis Coordinator

Research: CMS experiment - Proton-proton program at LHC.

- Designed a novel robotic system at CERN for silicon module assembly employing C based pattern recognition software. Successfully used for the complete CMS silicon tracker module assembly.

Honors

APS Fellow **2019**

Elected APS Fellow, American Physical Society, Division of Nuclear Physics

Teaching Award **2016**

Recipient of the 2016 William Caldwell Memorial Distinguished Teaching Award at Temple University

Goldhaber Distinguished Fellowship **2002 – 2003**

Competitive Fellowship program at Brookhaven National Laboratory, Upton, NY

CERN Fellowship **1998 – 2000**

Competitive Fellowship program at CERN, Meyrin, Switzerland

DESY Ph.D. Scholarship **1994 – 1997**

Scholarship throughout the full Ph.D. Thesis research

USA Scholarship by 'Studienstiftung des Deutschen Volkes e.V.' **1992 – 1993**

Scholarship to obtain a Masters Degree in the USA

Stony Brook University, Stony Brook, NY

Scholarship award by 'Studienstiftung des Deutschen Volkes e.V.' **1990 – 1994**

Competitive scholarship awarded by 'Studienstiftung des Deutschen Volkes' (German National Academic Foundation) to less than 0.25% of the German university student population based on a multi-stage selection process.

Teaching

Course development

- Lectured graduate students and undergraduate students with outstanding evaluations.
- Graduate courses: Nuclear and Particle Physics, Advanced Nuclear Physics and Theoretical Classical Mechanics.
- Undergraduate courses: Introductory Classical Mechanics, Introductory Electricity & Magnetism and Theoretical Classical Mechanics.
- Initiated new introductory physics course format known as studio physics at Temple University, both regular and honors versions.

Textbook

- Co-author of new graduate-level textbook 'Foundations of Nuclear and Particle Physics' published by Cambridge University Press in 2017.

External positions held and service / committee work

Conference and workshop organization

- Spin physics session at 18th conference on Elastic and Diffractive Scattering, EDS Blois 2019: XVth Rencontres du Vietnam, ICISE, Quy Nhon, Vietnam, June 2019
- Co-Chair of the 5th International Conference on Micro-Pattern Gas Detectors (MPGD2017) at Temple University, May 2017
- Co-Chair of the Joint CTEQ Meeting and POETIC 7 (7th International Conference on Physics Opportunities at an ElecTron-Ion-Collider) at Temple University, November 2016
- Co-Chair of the 1st EIC Tracking R&D Workshop at Temple University, May 2015
- Co-Chair of the Joint APS DNP QCD Town Meeting at Temple University, September 2014
- BNL W/Z boson workshop, BNL, Upton, NY, USA, June 2010
- Gluon polarization workshop, Urbana-Champaign, IL, USA, June 2008
- Future DIS session at XVIth International workshop on DIS and QCD - DIS 2008, London, UK, April 2008.
- Spin physics session at XVIth International workshop on DIS and QCD - DIS 2008, London, UK, April 2008.
- BNL W workshop, BNL, Upton, NY, USA, April 2007
- Member of the discussion team preparing for the 2007 NSAC planing process
    1. Invited talk on *Opportunities in low-x physics*, APS Division of Nuclear Physics: 2007 Long Range Plan - Joint Town Meetings on Quantum Chromodynamics, Rutgers University, Piscataway, NJ, USA, January 2007.
    2. Invited talk on *Experimental aspects of low-x measurements at a future electron-ion collider facility*, Workshop on Future Opportunities in QCD, Washington, DC, USA, December 2006.
- Silicon detector session, IEEE conference, Fall 2009, Orlando, FL

- Silicon detector session, IEEE conference, Fall 2006, San Diego, CA
- Silicon detector session, IEEE conference, Fall 2005, Puerto Rico

Service work and leadership role

- Elected Chair of the EIC User Group Executive Committee, 2017 – Present
- Elected Vice Chair of the EIC User Group Executive Committee, 2016 – 2017
- Elected AGS / RHIC Users Executive Committee (UEC) member, 2015 – 2018
- Institutional representative and member of the CERN RD51 Collaboration, Since 2009
- Institutional representative and member of the STAR Collaboration, Since 2001
- Project leader of the STAR Forward GEM Tracker Project, Since 2008 and the STAR Intermediate Silicon Tracker Project, 2006 – 2011
- Member of the LHeC Steering Committee at CERN, Since 2007
- STAR Deputy Spokesperson, 2008 – 2011
- STAR Spin Physics Working Group Convener, 2006 – 2008
- STAR Run Period Coordinator, 2009, 2012 and 2013
- OPAL Deputy Run Coordinator, 1998 – 2000
- OPAL Two-Photon Physics Working Group Convener, 1999 – 2000
- ZEUS Silicon VTX project co-project manager, 2001

Scientific journal, textbook and proposal review

- Referee for Physics Letters
- Referee for Physics Review D
- Referee of IEEE, Nuclear Instruments
- Referee of IEEE, Nuclear Science Symposium
- Referee of Nuclear Instruments and Methods
- Referee of Princeton University Press
- Proposal review and Laboratory site review for DOE Nuclear Physics and National Science Foundation

Service and committee work

Temple University committee work

- Director Center for Online and Digital Learning, CST Online Teaching Committee, 2020 – Present
- Chair, CST Online Teaching Committee, 2020 – Present
- Chair, Merit Committee, 2020 – Present
- Preparation of Departmental External Review and self-study document
- Organization of departmental retreat and strategic planing discussion / document, 2015 and 2016
- General exam committee (Classical Mechanics), 2015
- Undergraduate introductory course committee, 2014 – 2016
- Publicity committee / Departmental Newsletter, 2014 – 2018
- Department structure committee, 2014 – 2015
- Graduate oral exam committee, 2013 – 2017
- Faculty search committee, 2012 – 2016

MIT committee work

- General exam committee, 2005 and 2008
- Graduate selection committee, 2004 and 2005
- Member of the MIT Departmental Colloquium Committee, 2006 – 2010
- Member of the MIT LNS Colloquium Committee, 2006 – 2008
- Chair and Founder of the LNS Tuesday Lunch Seminar, 2005 – 2008

Membership

American Physical Society (APS) / APS Fellow

German Physical Society (Deutsche Physikalische Gesellschaft - DPG)

Skills

Management / Leadership

- MIT and Temple University RHIC Spin research group leader / Principal investigator / Supervising technical staff at MIT Bates Laboratory and MIT Laboratory for Nuclear Science.
- Spokesperson and physics analysis coordinator.
- Project manager.
- Reviewer of proposals and laboratory site visits on behalf of the DOE Nuclear Physics Office and the National Science Foundation.
- Consultant for Coursapp Inc. / KUDU and Passport Systems.
- Organization and advisory committee member of international workshops and conferences.
- Chair of world-wide Electron-Ion Collider User Group (800 members).
- Vice-Chair of Department of Physics at Temple University.

Computing

- LATEX, hypertext and various word processing programs, Management software such as MS Office Project.
- Fortran, C++, Perl, UNIX shell languages, Nuclear and Particle Physics standard software for physics analysis (CERN software), detector simulation software (GEANT software), different operating systems such as MAC OSX, UNIX, Linux and Windows.
- Supervised an effort for large scale computing farms and application of cloud computing techniques.

Physics analysis and theory / Mathematical and statistical methods

- Employed analytical QCD theory and models in nuclear and particle physics including application of dedicated complex computing tools and algorithm for projections of future experiments and programs.
- Applied and developed statistical methods for the quantitative analysis of large data sets.

Teaching / Advising

- Taught at undergraduate and graduate level.
- Supervised 9 MIT Ph.D. students, 5 Temple University Ph.D. students, 6 MIT undergraduate students, 9 Temple University undergraduate students.

Physics instrumentation in nuclear and particle physics

- Designed and simulated various detector systems in nuclear and particle physics such as calorimetry (OPAL / STAR / ZEUS) and tracking systems (STAR / ZEUS).
- Successfully developed micro-pattern technology based on commercial fabrication techniques profiting from two dedicated DOE SBIR grants in collaboration with Tech-Etch Inc. and Triton Systems Inc.

Publications / Presentations

Overview

- 110 principal author papers and 440 co-author papers.
- Two review papers in preparation following request by editorial board: a) *Review on the nature of the gluon spin contribution to the proton spin* to appear in Annual Review of Nuclear Particle and Science and b) *Review of W boson production in polarized $p+p$ collisions at RHIC* to appear in Physics Reports
- 114 invited presentations at international conferences and workshops, 71 invited presentations at colloquia and seminars, and 60 contributed presentations at international conferences and workshops.

- Co-author of new graduate-level textbook *Foundations of Nuclear and Particle Physics* published by Cambridge University Press in 2017.

Publication record (September 2020): *INSPIRE* (*pdf-hyperlink*)

Citation summary results	Citeable papers:	Published only:
Total number of citations:	48,010	46,987
Average citations per paper:	93.2	106.8
h_{HEP} index	109	108

Publication record (September 2010): *Google Scholar* (*pdf-hyperlink*)

Citation summary results	Value:
Citations:	52,969
h–index	115

Highlights of published research accomplishments:

- STAR experiment - Polarized proton-proton collider program at RHIC
  - *Measurement of the parity-violating longitudinal single-spin asymmetry and cross section for $W^{\pm}$ boson production in polarized proton-proton collisions at RHIC at $\sqrt{s} = 500\ GeV$*:
    - J. Adam *et al.* [STAR], Phys. Rev. D **99**, 051102 (2019). *pdf hyperlink*
    - L. Adamczyk *et al.* [STAR], Phys. Rev. Lett. **113**, 072301 (2014). *pdf hyperlink*
    - L. Adamczyk *et al.* [STAR], Phys. Rev. D **85**, 92010 (2012). *pdf hyperlink*
    - B. I. Abelev *et al.* [STAR], Phys. Rev. Lett. **106**, 062002 (2011). *pdf hyperlink*
    - *Press Release (pdf-hyperlink)*
  - *Measurement of the longitudinal double-spin asymmetry at RHIC constraining the gluon polarization in di-jet, inclusive jet and hadron production and first cross-section measurements at RHIC in inclusive jet production and hadron production*:
    - L. Adamczyk *et al.* [STAR], Phys. Rev. D **95**, 071103 (2017). *pdf hyperlink*
    - L. Adamczyk *et al.* [STAR], Phys. Rev. Lett. **115**, 092002 (2015). *pdf hyperlink*
    - L. Adamczyk *et al.* [STAR], Phys. Rev. D **86**, 032006 (2012). *pdf hyperlink*
    - B. I. Abelev *et al.* [STAR], Phys. Rev. D **80**, 111108 (2009). *pdf hyperlink*
    - B. I. Abelev *et al.* [STAR], Phys. Rev. Lett. **100**, 232003 (2008). *pdf hyperlink*
    - B. I. Abelev *et al.* [STAR], Phys. Rev. Lett. **97**, 252001 (2006). *pdf hyperlink*
    - *Scientific American News Release (pdf-hyperlink)*
  - *Measurement of the transverse single-spin asymmetry in forward neutral pion production in polarized proton-proton collisions at RHIC at $\sqrt{s} = 200\ GeV$*:
    - J. Adams *et al.* [STAR], Phys. Rev. Lett. **92**, 171801 (2004). (*294 citations*) *pdf hyperlink*
- Nuclear and Particle Physics Detector development
  - *Silicon detector*:
    - B. Surrow, Nucl. Instrum. Meth. A **461**, 251 (2001). *pdf hyperlink*
  - *GEM detector*:
    - M. Posik and B. Surrow, Nucl. Instrum. Meth. A **802**, 10 (2015). *pdf hyperlink*
    - B. Surrow, Nucl. Instrum. Meth. A **617**, 196 (2010). *pdf hyperlink*

    - F. Simon *et al.*, Nucl. Instrum. Meth. A **598**, 432 (2009). *pdf hyperlink*
    - B. Surrow *et al.*, Nucl. Instrum. Meth. A **572**, 201 (2007). *pdf hyperlink*

- OPAL experiment - Electron-Positron collider program at LEP
  - *Measurement of the total $\gamma^*\gamma^*$ and $\gamma\gamma$ cross-sections at LEP*:
    - G. Abbiendi *et al.* [OPAL], Eur. Phys. J. C **24**, 17 (2002). *pdf hyperlink*
    - G. Abbiendi *et al.* [OPAL], Eur. Phys. J. C **14**, 199 (2000). *pdf hyperlink*

- ZEUS experiment - Electron-proton collider program at HERA
  - *Charm production in charged current deep inelastic scattering at HERA*:
    - I. Abt *et al.* [ZEUS], JHEP **5**, 201 (2019). *pdf hyperlink*
  - *Measurement of the proton structure function F_2 at low Q^2 and very low Bjorken-x at HERA and phenomenological model and QCD analysis (Ph.D. Thesis Research)*:
    - J. Breitweg *et al.* [ZEUS], Eur. Phys. J. C **7**, 609 (1999). (*297 citations*) *pdf hyperlink*
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