

Jan Christopher Bernauer

Nuclear Physicist

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EXPERIENCE

- from September 2018 **Assistant Professor**, *Stony Brook University*, Stony Brook, USA, *Joint Position with Riken BNL Research Center*, Upton, NY, USA.
- 2014 – 2018 **Research Scientist**, *MIT*, Cambridge, USA.
- 2010 – 2014 **Postdoctoral Associate**, *MIT*, Cambridge, USA / Hamburg, Germany.
- 2003 – 2010 **Teaching assistant**, *Johannes Gutenberg-University*, Mainz, Germany.

Scientific Leadership

- April 2021 **How big is a proton: a modern puzzle**, *Outreach: INSPYRE2022 lecture*, YouTube.
- December 2020 **How big is the proton?**, *Outreach: Strong-2020 lecture series*, YouTube.
- November 2020 **Movie Physics**, *Outreach: World of Physics*, Stony Brook, NY, USA.
- November 2020 **Co-organizer for EIC workshop on Streaming Readout VII**, *Brookhaven National Lab.*, Upton, NY, USA.
- from October 2020 **Member of the Faculty Rights And Responsibilities Policy Committee**, *Stony Brook University*, Stony Brook, NY, USA.
- July 2020 **Co-organizer for CFNS ad-hoc meeting on Radiative Corrections**, *Department of Physics and Astronomy, Stony Brook University*, Stony Brook, NY, USA.
- May 2020 **Co-organizer for EIC workshop on Streaming Readout VI**, *Jefferson Lab.*, Newport News, VA, USA.
- November 2019 **Co-organizer for EIC workshop on Streaming Readout V**, *Riken BNL Research Center*, Upton, NY, USA.
- September 2019 **Member of Scientific Advisory Committee for XIX International conference on Science, Arts and Culture: The Proton Radius**, *ECSAC*, Veli Losinj, Croatia.
- May 2019 **Co-organizer for EIC workshop on Streaming Readout IV**, *Hotel Cenobio dei Dogi*, Camogli, Italy.

- April 2019 **The Proton radius puzzle**, *Outreach: World of Physics*, Stony Brook, NY, USA.
- December 2018 **Co-Convener for EIC workshop on Streaming Readout III**, *Christopher Newport University*, Newport News, VA, USA.
- from September 2018 **Graduate Admission Committee**, *Department of Physics and Astronomy, Stony Brook University*, Stony Brook, NY, USA.
- January 2018 **Co-organizer for EIC workshop on Streaming Readout II**, MIT, Cambridge, MA.
- September 2017 **Co-organizer for ACFI workshop on the Electroweak Box**, *Amherst Center for Fundamental Interactions, University of Massachusetts Amherst*, Amherst, MA, USA.
- August 2017 **Session Co-convener for NSTAR 2017**, *University of South Carolina*, Columbia, SC, USA.
- January 2017 **Co-convener for EIC workshop on Streaming Readout**, MIT, Cambridge, MA, USA.
- from 2011 **Reviewer**, *APS journals (PRL, PRC)*, *Ph.D. theses*.
- June 2015 **Co-convener for Intense Electron Beams Workshop**, *Cornell University*, Ithaca, NY, USA.
- 2014 **Outreach: Scientific American cover story + Q&A session**, *The Proton Radius Puzzle*.
- 2005 – 2009 **Member of GA/ProHaf**, *Johannes Gutenberg-University*, Mainz, Germany.
The GA/ProHaf is a committee concerned with questions regarding doctorate and habilitation. Especially involved in the modernization of the doctorate regulations.

EDUCATION

- 2005 – 2010 **Ph.D. in Nuclear Physics**, *Johannes Gutenberg-University*, Mainz, Germany, Magna cum laude.
Advisor: Thomas Walcher.
Measurement of the elastic electron-proton cross section and separation of the form factors G_E and G_M in the Q^2 region between $0.002 (\text{GeV}/c)^2$ and $1 (\text{GeV}/c)^2$. The work is supported by the CRC/SFB 443. I contributed substantially to the corresponding part of the CRC continuation application and was the main author of the experiment proposal which was given the highest rating by the PAC in 2005.

- 2004 **Diplom Physik**, *Johannes Gutenberg-University*, Mainz, Germany, mit Auszeichnung bestanden (passed with distinction).
Advisor: Jörg Friedrich.
Preparations for a high precision measurement of the electric and magnetic form factor of protons.

MEMBERSHIPS

- 2003 – now German Physical Society DPG (Unit: HK)
2013 – now American Physical Society APS (Units: DNP, FIP, FPS, GHP, SNES)

PRIZES

- 2017 Infinite Kilometer Award

SELECTED PRESENTATIONS

- December 2021 **How stuff breaks and how to fix it**, *EIC Streaming Readout Meeting IX*, Virtual meeting, ORNL.
- November 2020 **Some thoughts on protocol generators**, *EIC Streaming Readout Meeting VII*, Virtual meeting, BNL.
- September 2020 **Software Challenges in Streaming Readout**, *Future Trends in Nuclear Physics*, Virtual meeting, JLAB/BNL.
- July 2019 **Streaming readout for the EIC**, *EIC User Group meeting*, Paris, France.
- June 2019 **The proton radius puzzle - 9 years later**, *MENU 2019*, Pittsburgh, PA, USA.
- April 2019 **Trigger-less readout for current and future experiments**, *APS April meeting*, Denver, CO, USA.
- September 2018 **Two-Photon exchange in elastic lepton-proton scattering**, *Chiral Dynamics 2018*, Durham, NC, USA.
- May 2017 **The Precision Frontier in Lepton-Proton Scattering**, *International Conference on Precision Physics and Fundamental Physical Constants (FFK-2017)*, Warsaw, Poland.
- October 2016 **A coherent analysis of elastic electron scattering data**, *2016 Fall Meeting of the APS Division of Nuclear Physics*, Vancouver, BC, Canada.
- October 2015 **Two-photon exchange in proton elastic scattering**, *2015 Fall Meeting of the APS Division of Nuclear Physics (nominated speaker)*, Santa Fe, NM, USA.

SELECTED PUBLICATIONS

Peer-reviewed Articles

- [1] B. S. Schlimme et al. **Operation and characterization of a windowless gas jet target in high-intensity electron beams.** *Nucl. Instrum. Meth. A*, 1013:165668, 2021.
- [2] J. C. Bernauer et al. **Measurement of the Charge-Averaged Elastic Lepton-Proton Scattering Cross Section by the OLYMPUS Experiment.** *Phys. Rev. Lett.*, 126(16):162501, 2021.
- [3] T. Rostomyan et al. **Timing detectors with SiPM read-out for the MUSE experiment at PSI.** *Nucl. Instrum. Meth. A*, 986:164801, 2021.
- [4] C. S. Epstein et al. **Measurement of Møller scattering at 2.5 MeV.** *Phys. Rev. D*, 102:012006, 2020.
- [5] J. Beričić et al. **New Insight in the Q^2 Dependence of Proton Generalized Polarizabilities.** *Physical Review Letters*, 123:192302, 2019.
- [6] S. Lee et al. **Design and operation of a windowless gas target internal to a solenoidal magnet for use with a megawatt electron beam.** *Nucl. Instrum. Meth. A*, 939:46–54, 2019.
- [7] Yimin Wang, Ross Corliss, Richard G. Milner, Christoph Tschalär, and Jan C. Bernauer. **A helical-shape scintillating fiber trigger and tracker system for the DarkLight experiment and beyond.** *Nucl. Instrum. Meth. A*, 935:1–7, 2019.
- [8] R. Johnston et al. **Realization of a large-acceptance Faraday Cup for 3 MeV electrons.** *Nucl. Instrum. Meth. A*, 922:157–160, 2019.
- [9] D. Angal-Kalinin et al. **PERLE. Powerful energy recovery linac for experiments. Conceptual design report.** *Journal of Physics G Nuclear Physics*, 45(6):065003, 2018.
- [10] A. Schmidt, C. O’Connor, J. C. Bernauer, and R. Milner. **A novel technique for determining luminosity in electron-scattering/positron-scattering experiments from multi-interaction events.** *Nucl. Instrum. Meth. A*, 877:112, 2017.
- [11] M. Mihovilović et al. **First measurement of proton’s charge form factor at very low Q^2 with initial state radiation.** *Physics Letters B*, 771:194–198, 2017.
- [12] S. Štajner et al. **Beam-Recoil Polarization Measurement of π^0 Electroproduction on the Proton in the Region of the Roper Resonance.** *Phys. Rev. Lett.*, 119:022001, 2017.
- [13] B. S. Henderson et al. **Hard Two-Photon Contribution to Elastic Lepton-Proton Scattering Determined by the OLYMPUS Experiment.** *Phys. Rev. Lett.*, 118(9):092501, 2017.
- [14] J. C. Bernauer et al. **Measurement and tricubic interpolation of the magnetic field for the OLYMPUS experiment.** *Nucl. Instrum. Meth. A*, 823:9–14, 2016.
- [15] L. Doria, P. Janssens, et al. **Measurement of the beam-recoil polarization in low-energy virtual Compton scattering from the proton.** *Phys. Rev. C*, 92(5):054307, 2015.
- [16] J. C. Bernauer et al. **Electric and magnetic form factors of the proton.** *Phys. Rev. C*, 90:015206, 2014.
- [17] J.C. Bernauer et al. **The OLYMPUS internal hydrogen target.** *Nucl. Instrum. Meth. A*, 755(0):20 – 27, 2014.
- [18] J. C. Bernauer et al. **High-precision determination of the electric and magnetic form factors of the proton.** *Phys. Rev. Lett.*, 105:242001, 2010.