Curriculum Vitae

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General Information:

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Nationality:	American

Current Position and Responsibilities:

- Fermilab Senior Scientist (8/06 → present)
- Mu2e Experiment: Collaborator and Level 3 Manager for Beam Extinction
- IOTA Project: In charge of proton injection into IOTA ring
- Lee Teng Undergraduate Internship: Program Head, Chair of Selection Committee
- Users' Executive Committee: Elected member

Previous Positions:

8/08 → 8/13	Head, US LHC Accelerator Research Program (LARP)
9/04 → 8/08	Head, Fermilab Proton Source Department
9/03 → 7/06	Scientist I, Fermilab
9/01 → 8/03	Associate Scientist, Fermilab
7/94 → 8/01	Assistant Professsor of Physics, Princeton University
7/93 → 6/94	Research Physicist, Princeton University
7/92 → 6/93	Research Associate, Princeton University Princeton, NJ 08544
6/90 → 5/92	Scientific Associate, European Organization for Nuclear Research (CERN) 1211 Geneva 23, Switzerland
10/88 → 5/90	Technical Consultant, University of Rochester Rochester, NY 14627
6/84 → 5/90	Graduate Research Assistant, University of Rochester Rochester, NY 14627

Education:

Ph.D. in Physics:	1990, University of Rochester Rochester, NY. Thesis title: *"A Study of High Transverse Momentum Direct Photon Production from Beryllium and Copper Targets with 530 GeV/c Incident π^- and Proton Beams"*
M.A. in Physics:	1986, University of Rochester Rochester, NY
B.S. in Engineering Physics:	1984, University of Arizona Tucson, AZ

Honors and Awards:

	(Professional)
Elected Fellow	American Physical Society (2013)
Appreciation Award	US Department of Energy, for work as Director of USLARP (2013)
Exception Performance Recognition Award	Fermilab, for work done on the Mu2e Project (2012)
Employee Reward and Recognition Award	Fermilab, for instruction at the US Particle Accelerator School (2012)
Employee Reward and Recognition Award	Fermilab, for leadership in the Joint Fermilab-University PhD Program (2011)
Employee Reward and Recognition Award	Fermilab, for establishing and heading the Lee Teng Undergraduate Internship (2008)
SSC Fellowship	TNRLC/Princeton University (1993-94)
CERN Scientific Associateship	CERN (1990-92)
	(Graduate)
Messersmith Fellowship	University of Rochester (1986-87)
Sproull Fellowship	University of Rochester (1984-86)
	(Undergraduate)
E. Blois Du Bois Scholarship	University of Arizona (1983-84)
"	Arizona State University (1979-82)
Graduation with High Distinction	University of Arizona (1984)
Cubic Corporation Scholarship	University of Arizona (1982-83)
Phi Kappa Phi	Arizona State University (1981)
Phi Beta Kappa	Arizona State University (1981)

Professional Experience and Expertise

Area	Experience
High Energy Physics	Direct photon production (E706 at Fermilab)
	Z boson physics, quark-antiquark asymmetry (OPAL, at LEP)
	CP violation in the B-meson system (Belle at KEK)
	High field QED (E144 at SLAC)
	Short baseline neutrino oscillations (MiniBooNE at Fermilab)
	Charged Lepton Flavor Violation (Mu2e at Fermilab)
Accelerator Physics	Beam control
	Loss reduction
	Instrumentation
	Simulation
Education and Outreach	Taught undergraduate and graduate classes at Princeton, including development of special course based on weather satellites
	Taught graduate and undergraduate accelerator physics at the US Particle Accelerator School
	Established and managed Lee Teng Undergraduate Internship in Accelerator Science and Technology
	Mentored several students in above program
	Served as head of Joint University-Fermilab PhD Program in Accelerator Physics
	Mentored 3 graduate students in above program
	Numerous public lectures, demonstrations, and guest lectures at all levels
Management	5 years as Proton Source Department Head Responsible for roughly 35 people ($3M annual budget)
	5 years as head of US LHC Accelerator Research Program (LARP). Administered a $12-$13M annual budget among four labs and $\approx$ 100 people
	5 years as Level 3 Manager for Mu2e Beam Extinction and Extinction Monitoring ($3M total budget)
	Founding co-spokesperson for Mu2e Experiment (stepped down to assume leadership of LARP)
Electronics and Data Aqcuisition	Low noise analog electronics
	Digitial electronics and architecture design
	Field programmable gate array (FPGA) design
Computing and IT	Extensive programming experience at all levels
	Extensive high and low level programming experience
	system management on numerous platforms

Publications

(Conference proceedings in which I did not play a significant role are excluded.)

- S. Antipov *et al*, "IOTA (Integrable Optics Test Accelerator): Facility and Experimental Beam Physics Program", *to be submitted to JINST*
- E. Prebys *et al*, "Out of Time Beam Extinction in the Mu2e Beam Line", *to be submitted to PR-STAB*
- E. Prebys, S. Antipov, K. Carlson, H. Piekarz and A. Valishev, "Proton Injection into the Fermilab Integrable Optics Test Accelerator (IOTA)," doi:10.18429/JACoW-IPAC2016-TUPMY042
- E. Prebys *et al.*, "Long Term Plans to Increase Fermilab's Proton Intensity to Meet the Needs of the Long Baseline Neutrino Program," doi:10.18429/JACoW-IPAC2016-TUOAA03
- E. Prebys, L. Bartoszek, A. Gaponenko and P. Kasper, 'Beam Extinction Monitoring in the Mu2e Experiment," FERMILAB-CONF-15-167-APC.
- E. J. Prebys *et al.* [Mu2e Collaboration], "Out-of-Time Beam Extinction in the MU2E Experiment," FERMILAB-CONF-15-166-APC.
- L. Bartozek *et al.*, [Mu2e Collaboration], "Mu2e Technical Design Report", arXiv:1501.05241 [physics.ins-det], (2014)
- Belle and Babar Collaborations (A.J. Bevan, ed.), "The physics of the B Factories", 928 pp., **Eur.Phys.J. C74 (2014) 11, 3026**
- Y. Alexahin, D. Neuffer and E. Prebys, "Ionization Cooling for Muon Experiments," arXiv:1409.5479 [physics.acc-ph]. (2014)
- J. Anderson, R. Brock, Y. Gershtein, N. Hadley, M. Harrison, M. Narain, J. Nielsen and F. Olness *et al.*, "Benefits to the U.S. from Physicists Working at Accelerators Overseas," (2013) arXiv:1312.4884 [physics.soc-ph].
- M. Church, H. Edwards, P. H. Garbincius, E. Harms, S. Henderson, S. Holmes, A. Lumpkin and R. Kephart *et al.*, 'Proposal for an Accelerator R&D User Facility at Fermilab's Advanced Superconducting Test Accelerator (ASTA)," (2013) FERMILAB-TM-2568.
- R. J. Abrams *et al.* [Mu2e Collaboration], "Mu2e Conceptual Design Report',' arXiv:1211.7019 [physics.ins-det]. (2012)
- I. L. Rakhno *et al.* [mu2e Collaboration], "Optimization of Extinction Efficiency in the 8-GeV Mu2e Beam Line," Conf. Proc. C **1205201**, 565 (2012).
- E. Prebys, N. J. Evans and S. E. Kopp, "An Estimate of Out of Time Beam Upon Extraction for Mu2e," Conf. Proc. C **1205201**, 2994 (2012).

- V. A. Lebedev, E. Prebys, A. V. Petrenko, S. E. Kopp and M. J. McAteer, "Model Calibration and Optics Correction Using Orbit Response Matrix in the Fermilab Booster," Conf. Proc. C **1205201**, 1251 (2012).

- E. Prebys, "Optimization of AC Dipole Parameters for the Mu2e Extinction System," Conf. Proc. C **1205201**, 2714 (2012).

- G. V. Velev, G. Ambrosio, N. Andreev, M. Anerella, R. Bossert, S. Caspi, G. Chlachidze and J. DiMarco *et al.*, "Field Quality Study of the LARP Nb_3Sn 3.7 m-Long Quadrupole Models of LQ series," IEEE Trans. Appl. Supercond. **22**, no. 3, 9002804 (2012).

- A. A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], "Test of Lorentz and CPT violation with Short Baseline Neutrino Oscillation Excesses," Phys. Lett. B **718**, 1303 (2013) [arXiv:1109.3480 [hep-ex]].

- K. B. M. Mahn *et al.* [SciBooNE and MiniBooNE Collaborations], "Dual baseline search for muon neutrino disappearance at $0.5\mathrm{eV}^2 < \Delta m^2 < 40\mathrm{eV}^2$," Phys. Rev. D **85**, 032007 (2012) [arXiv:1106.5685 [hep-ex]].

- A. A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], "Measurement of ν_μ-induced charged-current neutral pion production cross sections on mineral oil at $E_\nu \in 0.5 - 2.0$ GeV," Phys. Rev. D **83**, 052009 (2011) [arXiv:1010.3264 [hep-ex]].

- McAteer *et al.*, "Measurement and manipulation of beta functions in the Fermilab Booster", *Presented at 2011 Particle Accelerator Conference (PAC'11), New York, NY, 28 Mar - 1 Apr 2011.* **FNAL-CONF-11-176-APC**, Mar 2011. 3pp.

- LARP Collaboration, "Test results from the first 3.7 m long Nb3Sn quadrupole by LARP and future plans", **FERMILAB-PUB-10-312-TD**, Aug 2010.

- MiniBooNE Collaboration, "First Measurement of the Muon Neutrino Charged Current Quasielastic Double Differential Cross Section", **Phys.Rev.D81:092005,2010.**

- MiniBooNE Collaboration, "Measurement of nu(mu) and anti-nu(mu) induced neutral current single pi0 production cross sections on mineral oil at E(nu) O(1- GeV)", **Phys.Rev.D81:092005,2010.**

- E. Prebys *et al.*, "Extinction in the Mu2e Beam Line", *Presented at the 11th International Workshop on Neutrino Factories, Superbeams and Betabeams: NuFact09, Chicago, Illinois, 20-25 Jul 2009*, **AIP Conf.Proc.1222:415-419,2010.**

- M.J. Syphers, M. Popovic, E. Prebys, C. Ankenbrandt, "Preparations for Muon Experiments at Fermilab", ERMILAB-CONF-09-153-AD, May 2009, *Presented at Particle Accelerator Conference (PAC 09), Vancouver, BC, Canada, 4-8 May 2009.*

- E. Prebys *et al.*, "AC Dipole System for Inter-Bunch Beam Extinction in the Mu2e Beam Line", FERMILAB-CONF-09-190-APC, May 2009, *Presented at Particle Accelerator Conference (PAC 09), Vancouver, BC, Canada, 4-8 May 2009.*

- MiniBooNE Collaboration, "Measurement of the $\nu_\mu$charged current π^+ to quasi-elastic cross section ratio on mineral oil in a 0.8 GeV neutrino beam", **Phys.Rev.Lett.103:081801,2009.**

- G. Velev *et al.*, "Fabrication and Production Test Results of Multi-Element Corrector Magnets for the Fermilab Booster Synchrotron", FERMILAB-CONF-09-142-TD, Apr 2009, *Presented at Particle Accelerator Conference (PAC 09), Vancouver, BC, Canada, 4-8 May 2009.*

- MiniBooNE Collaboration, "Search for muon neutrino and antineutrino disappearance in MiniBooNE", **Phys.Rev.Lett.103:061802,2009.**

- E. Prebys, "The intensity frontier at Fermilab", *Prepared for 2009 Europhysics Conference on High Energy Physics: HEP 2009 (EPS-HEP 2009), Cracow, Poland, 16-22 Jul 2009*, **PoS EPS-HEP2009:144,2009.**

- MiniBooNE Collaboration, "Unexplained Excess of Electron-Like Events From a 1-GeV Neutrino Beam", **Phys.Rev.Lett.102:101802,2009**

- Mu2e Collaboration, "Proposal to search for $\mu^- N \to e^- N$ with a single event sensitivity below 10 -16", FERMILAB-PROPOSAL-0973, Oct 2008. 234pp.

- MiniBooNE Collaboration, Minos Collaboration, "First Measurement of nu(mu) and nu(e) Events in an Off-Axis Horn-Focused Neutrino Beam", **Phys.Rev.Lett.102:211801,2009.**

- MiniBooNE Collaboration, "The Neutrino Flux prediction at MiniBooNE", **Phys.Rev.D79:072002,2009.**

- MiniBooNE Collaboration, "The MiniBooNE Detector", **Nucl.Instrum.Meth.A599:28-46,2009.**

- MiniBooNE Collaboration, "Compatibility of high - Delta m**2 nu(e) and anti-u(e) neutrino oscillation searches", **Phys.Rev.D78:012007,2008.**

- MiniBooNE Collaboration, "First Observation of Coherent pi0 Production in Neutrino Nucleus Interactions with E(nu) <2-GeV", **Phys.Lett.B664:41-46,2008.**

- R.M. Carey *et al.*, "Letter of intent: a muon to electron conversion experiment at Fermilab", FERMILAB-TM-2396-AD-E-TD, FERMILAB-APC, Sep 2007. 44pp.

- A. Makarov *et al.*, "Design and fabrication of a multi-element corrector magnet for the Fermilab Booster", *Presented at 20th International Conference on Magnet Technology (MT20), Philadelphia, Pennsylvania, 27-31 Aug 2007*, **IEEE Trans.Appl.Supercond.18:334-337,2008.**

- E. Prebys *et al.*, " Expression of Interest: A Muon to Electron Conversion Experiment at Fermilab", FERMILAB-TM-2389-AD-E, Aug 2007. 7pp.

- MiniBooNE Collaboration, "Measurement of muon neutrino quasi-elastic scattering on carbon", **Phys.Rev.Lett.100:032301,2008.**

- J. Lackey, F.G. Garcia, M. Popovic, E. Prebys, "Operation and performance of the new Fermilab Booster H- injection system", PAC07-TUPAS026, FERMILAB-CONF-07-248-AD, Jun 2007. 3pp, *In the Proceedings of Particle Accelerator Conference (PAC 07), Albuquerque, New Mexico, 25-29 Jun 2007, pp 1709. Also in *Albuquerque 2007, Particle accelerator* 1709-1711.*

- D.J. Harding *et al.*, "Design and fabrication of a multi-element corrector magnet for the Fermilab Booster synchrotron", PAC07-TUPAS026, FERMILAB-CONF-07-248-AD, Jun 2007. 3pp, *In the Proceedings of Particle Accelerator Conference (PAC 07), Albuquerque, New Mexico, 25-29 Jun 2007, pp 170.9*

- C. Drennan *et al.*, "System overview for the multi-element corrector magnets and controls for the Fermilab Booster", PAC07-MOPAS005, FERMILAB-PUB-07-228-AD-TD, FERMILAB-APC, Jun 2007. 3pp, *In the Proceedings of Particle Accelerator Conference (PAC 07), Albuquerque, New Mexico, 25-29 Jun 2007, pp 449.*

- E. Prebys *et al.*, "A New Corrector System for the Fermilab Booster", PAC07-MOPAS016, FERMILAB-CONF-07-255-AD, FERMILAB-APC, Jun 2007. 3pp, *n the Proceedings of Particle Accelerator Conference (PAC 07), Albuquerque, New Mexico, 25-29 Jun 2007, pp 467.*

- MiniBooNE Collaboration (A.A. Aguilar-Arevalo *et al.*), "A Search for Electron Neutrino Appearance at the $\Delta m^2 \approx 1\mathrm{eV}^2$ Scale", **Phys.Rev.Lett.98:231801,2007.**

- C. Ankenbrandt, D. Bogert, F. DeJongh, S. Geer, D. McGinnis, D. Neuffer, M. Popovic, E. Prebys, "Using the Fermilab proton source for a muon to electron conversion experiment", FERMILAB-TM-2368-AD-E, Nov 2006. 18pp.

- E706 Collaboration (L. Apanasavich *et al.*), "Nuclear Effects in high-p_T Production of Direct Photons and Neutral Mesons", **Phys.Rev.D72:032003,2007.**

- E. Prebys, "Radiation Issues in the Fermilab Booster Magnets", **PAC05-WPAE028**, May 2005 (*Presented at PAC05, Knoxville, TN, May 2005*).

- E706 Collaboration (L. Apanasavich *et al.*), "Measurement of Direct Photon Production at Tevatron Fixed Target Energies", **Phys.Rev.D70:092009,2004**.

- E706 Collaboration (L. Apanasavich *et al.*), "Production of π^0 and η Mesons at Large Transverse Momenta in pp and pBe Interactions at 515 GeV/c", **Phys.Rev.D69:032003,2004**.

- N.V. Mokhov, A.I. Drozhdin, P.H. Kasper, J.R. Lackey, E.J. Prebys, R.C. Webber, "Fermilab Booster Beam Collimation and Shielding", **FERMILAB-CONF-03-087, May 2003** (*Presented at PAC03, Portland, Oregon, May 2003*).

- E. Prebys (*for the Belle Collaboration*), "Status of the Belle Experiment", **AIP Conf.Proc.549:848-851,2002**.
- Belle Collaboration (K. Abe *et al.*), "Study of CP-Violating Asymmetries in $B^0 \to \pi^+\pi^-$ Decays", **Phys.Rev.Let.89:071801,2002**.
- Belle Collaboration (K. Abe *et al.*), "Observation of Mixing Induced CP Violation in the Neutral B Meson System", **Phys.Rev.D66:032007,2002**.
- Belle Collaboration (K. Abe *et al.*), "Determination of $|V_{cb}|$ Using the Semileptonic Decay $\bar{B}^0 \to D^* + e^-\bar{\nu}$" **Phys.Lett.B526:247-257,2002**.
- Belle Collaboration (K. Abe *et al.*), "Measurement of the Branching Fraction for $B \to \eta' K$ and Search for $\eta'\pi^+$", **Phys.Lett.B517:309-318,2001**.
- Belle Collaboration (K. Abe *et al.*), "Observation of Large CP Violation in the Neutral B Meson System", **Phys.Rev.Lett.87:091802,2001**.
- Belle Collaboration (K. Abe *et al.*), "Search for Direct CP Violation in $B \to K\pi$ Decays", **Phys.Rev.D64:071101,2001**.
- Belle Collaboration (S. Mori (ed.) *et al.*), "The Belle Detector", **Nucl.Instrum.Meth.A479:117-232,2002**.
- Belle Collaboration (M. Yamaga *et al.*) "RPC Systems for the Belle Detector at KEKB", **Nucl.Instrum.Meth.A456:109-112,2002**.
- Belle Collaboration (K. Abe *et al.*), "Observation of $B \to J/\psi K_1(1270)$", **Phys.Rev.Lett.87:161601,2001**.
- Belle Collaboration (K. Abe *et al.*), "A Measurement of the Branching Fraction for the Inclusive $B \to \chi_s\gamma$ Decays with Belle", **Phys.Lett.B511:151-158,2001**.
- Belle Collaboration (K. Abe *et al.*), "Measurement of the Inclusive Production of Neutral Pions from $\Upsilon(4S)$ Decays". **Phys.Rev.D64:072001,2001**.
- Belle Collaboration (A. Abashian *et al.*), "Measurement of the CP Violation Parameter $\sin 2\phi_1$ in B^0_D Meson Decays", **Phys.Rev.Lett.86:2509-2514,2001**.
- T. Iijima *et al.*, "Aerogel Cerenkov Counter for the Belle Detector", **Nucl.Instrum.Meth.A453:321-325,2000**.
- Belle Collaboration (K. Abe *et al.*), "Measurement of $B^0_D - \bar{B^0_D}$ Mixing Rate from the Time Evolution of Dilepton Events at the $\Upsilon(4S)$", **Phys.Rev.Lett.86:3228-3232,2001**.
- Belle Collaboration (A. Abashian *et al.*), "The K_L/μ Detector Subsystem for the Belle Experiment at the KEK B-Factory", **Nucl.Instrum.Meth.A449:112-124,2000**.

- Muon Collider Collaboration (C. Akenbrandt *et al.*), "Status of Muon Collider Research and Development and Future Plans",
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- T. Iijima and E. Prebys (representing Belle Collaboration), "Commissioning and First Results from Belle", **Nucl.Instrum.Meth.A446:75-83**.

- E. Prebys (representing Belle Collaboration), "Physics Prospects for Belle",
Nucl.Instrum.Meth.A446:89-91,2002.

- T. Sumiyoshi *et al.*, "Silica Aerogel Cerenkov Counter for the KEK B-Factory Experiment", **Nucl.Instrum.Meth.A433:385-391,1999**.

- E144 Collaboration (C. Bamber *et al.*), "Studies of Nonlinear QED in Collisions of 46.6 GeV Electrons with Intense Laser Pulses", **Phys.Rev.D60:092004,1999**.

- MUCOOL Collaboration (C. Ankenbrandt *et al.*) , "Ionization Cooling Research and Development Program for a High Luminosity Muon Collider", FERMILAB-P-0904, Apr 1998, 75pp.

- E. Prebys (representing the Muon Collider Collaboration), "Toward a Muon Collider: How, Why, When", *to be puplished in the proceedings of "Rencontres de Moriond, Electroweak Session, March, 1998"* (1998).

- E706 Collaboration (L. Apanasevich *et al.*), "Evidence for Parton k_T Effects in High P_T Particle Production", **Phys.Rev.Lett.81:2642-2645,1998**.

- E144 Collaboration (C. Bula *et al.*), "Positron Production in Multi-Photon Light by Light Scattering", **Phys.Rev.Lett.79:1626-1629,1997**.

- E706 Collaboration (A. Apanasevich *et al.*), "Calibration and Performance of the E706 Lead and Liquid Argon Electromagnetic Calorimeter",
Nucl.Instrum.Methods.A417:50-68,1998.

- E706 Collaboration (A. Apanasevich *et al.*), "Production of Charm Mesons at High Transverse Momentum in 515 GeV/c π-Nucleon Collisions", **Phys.Rev.D56:1391-1406,1997**.

- E144 Collaboration (C. Bula *et al.*), "Observation of Nonlinear Effects in Compton Scattering", **Phys.Rev.Lett.76:3116-3119,1996**.

- T.Liu *et al.*"A Switched Capacitor Based Charge to Time Converter", KEK-PREPRINT-96-39, Jun 1996. 9pp. *Submitted to Nucl. Instrum. Meth.*

- E144 Collaboration(T.Kotseroglou *et al.*),"Picosecond Timing of Terawatt Laser Pulses with the SLAC 46 GeV Electron Beam", **Nucl.Instrum.Meth.A383:309-317,1996**.

- H. Kichimi *et al.*, "The Cerenkov Correlated Timing Detector: Beam Test Results from Quartz and Acrylic Bars", **Nucl.Instrum.Meth.A371,91-95,1996**.

- C. Lu *et al.*, "Detection of Internally Reflected Cerenkov Light, Results from the Belle DIRC Prototype", **Nucl.Instrum.Meth.A371:82-86,1996**.
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- G. Alverson, *et al.*, "Structure of the Recoiling System in Direct Photon and π^0 Production by π^- and p Beams at 500 GeV/c", **Phys.Rev.D49:3106-3112,1994**.
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