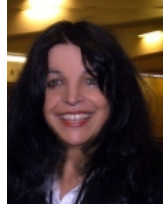


CURICULUM VITAE

ZOHREH PARSA,

Physicist



PERSONAL DATA:

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EDUCATION AND PROFESSIONAL EXPERIENCE:

Education: Ph.D. in Physics, Polytechnic University, N. Y. (1977).
Doctoral Dissertation: Topological Solitons: Vortices,
Magnetic Monopoles And Instantons.

M. S. in Physics, New York University, N. Y. (1971).

B. S. in Physics, Delaware, Delaware 1969.

** With Fellowships: 1975-77 (Polytechnic U.)
Fellowships: 1969-74 (NYU)
Scholarship 1966-69 (Delaware)

POSITIONS & RELEVANT EXPERIENCE:

Physicist, Professor, Director, Chair, Coordinator, Developer and Organizer of Research Programs and Workshops; Team Leader and Chief Scientist of (US State Department Funded) Projects with Former Nuclear Weapon Scientists, etc.

Physicist (Theory and Phenomenology), Brookhaven National Lab (1985 -);
Tenured Faculty (Physics Prof.) New Jersey Institute of Technology (1977-1985);
Physics Lecturer (Adjunct) City University of NY C. College (1975-1977) &
Physics Lecturer (Adjunct) City University of NY Hunter College (1972-1975);
Director of Physics and Engineering Labs, Essex C. College (1972 -1974);
Professor of Physics, University of California, Santa Barbara (1996-1997);
Visiting Scientist, Univ. Mainz, Germany (May 2011- Summer 2012 & 2003);
Visiting Scientist, Univ. Karlsruhe, Germany (May-Aug 2002 & 2003);
Visiting Scientist in Reactor Group, Brookhaven National Lab (1977-1984);
Visiting Prof., Institute for Nuclear Theory, Univ. of Washington, Seattle;
Visiting Scholar, Northwestern University, Evanston ILL (1980-1981);
Visiting Scholar, Aspen Center for Physics, Aspen Colorado;
Visiting Scholar, at Los Alamos National Lab, Los Alamos, New Mexico, etc.

RESEARCH INTEREST:

Professor Dr. Zohreh Parsa has been Physicist (theory and phenomenology); Tenured Faculty; Author; Editor; Executive; ... Her research has spanned Nuclear Physics; Particle Physics; Collider Physics (ILC, LHC, MC, SSC); & Non-linear physics/ Dynamics; and has included: Nuclear Structure within the framework of quasiparticle – vibration coupling approach in the unified nuclear model; Topological Solitons in Physics; Multiply Charged Magnetic Monopoles; and Quantum Chromodynamics. Wavelet; Chaos; flavor Physics; Rare Kaon Decay; Intermediate Vector Bosons; Neutrino Cosmology; Neutrino Electron Scattering theory. Non-linear Physics. Dark Matter. Muon; and Neutrino Physics. Including Neutrino/ CP violation and Very Long Baseline Neutrino Experiment (LBNE) studies she started in 1998 that envisioned sending a very intense neutrino beam through the earth to a "far away", underground, large detector to

search for Physics Potentials for making Precision Measurements of all Neutrino Oscillation Parameters, CP Violation, Proton Decay and Natural Sources of Neutrinos such as Supernova. "Very Long Distance" is the key to this approach, the physics you can do; and provide possibility of observing multiple nodes of neutrino oscillation probability in appearance and disappearance experiments. Observation of such a pattern will demonstrate oscillatory nature of the flavor changing phenomenon, LBNE would be capable of measuring high-statistics neutrino signals from a supernova in our galaxy, provide information on inside of newly-formed neutron star, and possible observation of black hole formation.

PROFESSIONAL ACTIVITIES:

Professor Parsa in addition to Teaching and Research, has been: "Author"; "Referee"; "Editor" and "Editor in Chief" of Newsletters, Scientific papers, Manuals, and books; Executive Science International LLC (2006-).

PROFESSIONAL ORGANIZATIONS AND COLLABORATIONS:

CHAIR, COORDINATOR, ORGANIZER:

Coordinator, organizer of the first US long term Particle & Accelerator Research Program: "New Ideas for Particle – Accelerators", at Institute for Theoretical Physics (ITP), Santa Barbara, California (July - December 1996). [A unique feature of the Program (and 3 symposia) was the bringing together of many physicists who will have a major impact on the future direction of the field. Many topics we worked on led to National & International Physics projects in particle and accelerator physics [and was funded by the National Science Foundation].

Chairperson & organizer of Symposium on "New Modes of Particle Acceleration – Techniques and Sources", Santa Barbara, California August 19 - 23, 1996. [Highlights of that meeting included Novel Modes of laser, plasma, and Wakefield acceleration, techniques, and power sources.].

Chairperson, and organizer of the Symposium on "Future High Energy Colliders", Santa Barbara, California October 21 - 25, 1996. [Especially interesting were set of presentations made by Department of Energy Director of Energy Research by National Science Foundation; and by the Directors of the three U.S. High Energy Physics Laboratories (BNL, FNAL, and SLAC). Their perspectives, combined with presentations by Internationally distinguished high energy and accelerator physicists, provided a comprehensive picture of the issues involved formulating goals for the future, and should provide a valuable input for ongoing discussions in making decisions regarding the future direction of the field.

See: Z. Parsa, Future High Energy Colliders Summary Report: BNL-52524, 1996; and Z. Parsa, "Collision Crossroads, CERN Courier" Vol 37, 2, March 1997, Ed. G. Fraser].

Chairperson, and organizer of the Symposium on “Beam Stability and Nonlinear Dynamics” Santa Barbara, California December 3-5, 1996; [Dealt with the fundamental theoretical Nonlinear dynamics problems associated with particle - accelerator physics.];

Chair of the “CIPANP” Local organizing committee and member of “Intersection” organizing committee for the 8th Conference on “Intersection of Particle and Nuclear Physics”, in New York City, May 2003. [The conference we organized in New York City provided an interesting location for many participants who attended the CIPANP2003, where the BNL RHIC preliminary results were presented, in addition to the Particle, Nuclear, and related topics. The program was well attended with over 500 participants.] ;

Chairperson and Organizer of the American Physical Society - New York State Section Topical Symposium on “Particle Accelerator Frontiers and New Physics Potentials” Brookhaven National Laboratory, Upton New York, October 2003, etc.

Chairperson and organizer of the BNL Particle & Accelerator Physics Seminars, for 12 years (1987-1999). The biweekly seminar topics covered Particle Physics, Accelerator Physics, and in between topics. It was well attended; etc.

PROFESSIONAL MEMBERSHIPS & ELECTED POSITIONS :

Elected Executive committee member of New York State Section of the American Physical Society (2001-2005);

Elected Chair of Digital Equipment Corporation User Society (DECUS) Upton Section (1986-1999);

Member of Long Baseline Neutrino Experiment (LBNE); LBNF; DUNE Collaborations ; Member of Neutrino Working Group(s) (2001- present);

Member of the International Linear Collider (ILC) Collaboration; (1992-);

Member of Muon Collider and Neutrino Factory Collaborations (1993-);

Member & Team Leader of US State Department Funded Projects, with Former Nuclear Weapon Scientists from Russia; Ukraine (1999 – 2005); etc.

Member of American Physical Society (APS);

Member of Division of Particles and Fields (DPF);

Member of Division of Nuclear Physics (DNP);

Member of International Physics Forum (FIP) ;

Member of Industrial and Applied Physics Forum (FIAP); etc.

Organizer and Chair of BNL biweekly Particle and Accelerator Physics seminars, 12 years (1987-1999); [The biweekly seminar covered Particle Physics, Collider Physics (e.g. Muon Collider), and in between topics in the Physics Department Seminar room(s) at BNL was well attended with participants from various groups.

COMPUTER ACTIVITIES:

Chair of BNL Computer "Local Users Group" (LUG) for 13 years. Meetings was well attended by participants from Groups, Divisions and outside of the BNL. It provided Forums for the participants from all fields to learn about new computer technology and provided a question and answer session between participants and local & visiting computer gurus. Talks and discussions included VAX VMS, IBM, Unix (Linux), PC, Networking and Storage problems and solutions; etc.

Elected Chair of Digital Equipment Corporation User Society (DECUS) Upton Section 13 years (1986-1999);

Editor: Computer Code Manuals; and Computer Primer(s) for VMS, Unix and IBM that was distributed by the computer Department.

Member of Cyber Administration, etc.

REFEREE & AUTHOR:

Referee and Author of Physics Journals, Research Publications, Physics and Computer Manuals.

EDITORSHIPS:

Editor and Editor-in-Chief of the American Physical Society New York State "Physics Newsletter" (2000-2005). Editor of the Inaugural Issue (started) Vol 1 in 2002, Volume 2, 2003, Volume 3, 2004.., (4000 copies of each vol was printed and distributed by the American Physical Society).

Editor of Physics Conference Proceedings, Books; etc.

Editor of (5 + Books):

“New Modes of Particle Acceleration – Techniques and Sources”; Z. Parsa (editor) AIP CP 396, AIP Press, Woodbury, New York (1997), 211 pages. ISBN 1-56396-728-6, Printed in USA.

“Future High Energy Colliders”; Z. Parsa (editor) AIP CP 397; American Institute of Physics Press, NY (1997). Woodbury, New York (1997), 378 pages. ISBN 1-56396-729-4.

“Beam Stability and Nonlinear Dynamics”; Z. Parsa (editor) AIP CP 405”, AIP Press, Woodbury, New York (1997), 245 pages. Printed in United States. ISBN 1-56396-731-6.

“Intersections of Particle and Nuclear Physics” 7th conference; Z. Parsa with W. Marciano (editors), AIP CP 549, American Institute of Physics, Melville, New York, 1040 pages (2001); Printed in USA. ISBN 1-56396-978-5.

“Intersections of Particle and Nuclear Physics” 8th conference, Z. Parsa (editor) AIP CP 698. American Institute of Physics, Melville, N.Y., 1000 pages (2003), Printed in USA. ISBN 0-7354-0169-1.

Partial PUBLICATION LIST:

Papers by Author

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242. "Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume II DUNE Physics" With Babak Abi (Oxford U.) et al. [DUNE Collaboration] e-Print: 2002.03005 [hep-ex] (Feb 7, 2020).

241. "Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume I Introduction to DUNE" Babak With Abi(Oxford U.) et al. [DUNE Collaboration] e-Print: 2002.02967 [physics.ins-det] (Feb 7, 2020).

240. "The DUNE Far Detector Interim Design Report, Volume 2: Single-Phase

Module” With B. Abi (Oxford U.) et al. [DUNE Collaboration] e-Print: 1807.10327 [physics.ins-det]; (Jul 26, 2018).

239. “The DUNE Far Detector Interim Design Report Volume 1: Physics, Technology and Strategies” With B. Abi(Oxford U.) et al. [DUNE Collaboration] e-Print: 1807.10334 [physics.ins-det] ; (Jul 26, 2018).

238. “The DUNE Far Detector Interim Design Report, Volume 3: Dual - Phase Module” With B. Abi et al. [DUNE Collaboration]; arXiv:1807.10340 [physics.ins-det]; FERMILAB-DESIGN-2018-04; (2018).

237. “The DUNE Far Detector Interim Design Report, Volume 2: Single-Phase Module” With B. Abi et al. [DUNE Collaboration]; arXiv:1807.10327 [physics.ins-det]; FERMILAB-DESIGN-2018-03; (2018).

236. “The DUNE Far Detector Interim Design Report Volume 1: Physics, Technology and Strategies” With B. Abi et al. [DUNE Collaboration]; arXiv:1807.10334 [physics.ins-det]; FERMILABDESIGN-2018-02; (2018).

235. “The Single-Phase ProtoDUNE Technical Design Report”; With B. Abi et al. [DUNE Collaboration]; arXiv:1706.07081 [physics.ins-det]; FERMILAB-DESIGN-2017-02; (2017).

234. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 1: The LBNF and DUNE Projects” With R. Acciarri et al. [DUNE Collaboration]; arXiv:1601.05471 [physics.ins-det]; FERMILAB-DESIGN- 2016-01; (2016).

233. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 4 The DUNE Detectors at LBNF” With R. Acciarri et al. [DUNE Collaboration]; arXiv:1601.02984 [physics.ins-det]; FERMILAB-DESIGN-2016-04; (2016).

232. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 2: The Physics Program for DUNE at LBNF” With R. Acciarri et al. [DUNE Collaboration]; arXiv: 1512.06148 [physics.ins-det]; FERMILABDESIGN - 2016-02; (2015).

231. “The Intermediate Neutrino Program” With C. Adams et al.; arXiv:1503.06637 [hep-ex]; FERMILAB-CONF-15-120-ND

230. “Working Group Report: Quark Flavor Physics” With J. N. Butler et al. [Quark Flavor Physics Working Group]; arXiv:1311.1076 [hep-ex]; FERMILAB-CONF-13-664-PPD-T; (2013).

229. “Working Group Report: Neutrinos” With A. de Gouvea et al. [Intensity Frontier Neutrino Working Group]; arXiv:1310.4340 [hep-ex]; FERMILAB-CONF-13-479-E; (2013), 122 citations.

228. “Scientific Opportunities with the Long-Baseline Neutrino Experiment” With C. Adams et al. [LBNE Collaboration]; FERMILAB-CONF-13-300; (2013).

227. “The Long-Baseline Neutrino Experiment: Exploring Fundamental Symmetries of the Universe” With C. Adams et al. [LBNE Collaboration]; arXiv:1307.7335 [hep-ex]; BNL-101354-2013-JA, BNL-101354-2014-JA, FERMILAB-PUB-14-022, LA-UR-14-20881; (2013).

226. “Fundamental Physics at the Intensity Frontier” With J. L. Hewett et al.; arXiv:1205.2671 [hep-ex]; DOI:10.2172/1042577 ANL-HEP-TR-12-25, SLAC-R-991, FERMILAB-CONF-12-879-PPD; (2012).

225. “The Long Baseline Neutrino Experiment (LBNE) Water Cherenkov Detector (WCD) Conceptual Design Report (CDR)” With J. Goon et al. [LBNE Collaboration]; arXiv:1204.2295 [physics.ins-det]; (2012).

224. “The 2010 Interim Report of the Long-Baseline Neutrino Experiment Collaboration Physics Working Groups” With T. Akiri et al. [LBNE Collaboration]; arXiv:1110.6249 [hep-ex]; FERMILAB-FN-0941-PPD, LBNE-PWG-004.

223. “Flavor Physics in the Quark Sector” With M. Antonelli et al.; arXiv:0907.5386 [hep-ph]; DOI:10.1016/j.physrep.2010.05.003; Phys. Rept. 494, 197 (2010); BNL-90299-2009-BC, CERN-PHTH-2009-112, FERMILAB-PUB-09-323-T, LAL-09-111, MPP-2009-88, MZ-TH-09-22, MKPH-T-09-14, SLAC-R-926, WSU-HEP-0902, LAL -09-111, TUM-HEP-728-09; (2009).

222. “Review of Particle Physics” With C. Amsler et al. [Particle Data Group]; DOI:10.1016/j.physletb. 2008.07.018; Phys. Lett. B 667, 1 (2008).

221. “ILC Reference Design Report Volume 3 - Accelerator” With N. Phinney et al.; arXiv:0712.2361 [physics.acc-ph]; (2007); 100 citations.

220. “ILC Reference Design Report Volume 4 - Detectors” With T. Behnke et al. [ILC Collaboration]; arXiv:0712.2356 [physics.ins-det]; FERMILAB-DESIGN-2007-02, FERMILAB-PUB-07-793-E; (2007).

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217. “Report of the US long baseline neutrino experiment study” With V. Barger et al.; arXiv:0705.4396 [hep-ph]; FERMILAB-FN-0801-AD-E, BNL-77973-2007-IR; (2007).

216. "Intense neutrino beams and leptonic CP violation" W. Marciano and Z. Parsa.; hep-ph/0610258; DOI:10.1016/j.nuclphysbps.2011.03.114; Nucl. Phys. Proc. Suppl. 221, 166 (2011); BNL-HET-06-14; (2006).
215. "Proposal for an Experimental Program in Neutrino Physics and Proton Decay in the Homestake Laboratory" With M. Diwan et al.; hep-ex/0608023; BNL-76798-2006-IR; (2006).
214. "Fokker-Planck Model of Charged Particle Beam Behavior in Strong Toroidal Magnetic Field"; Z. Parsa, A. Chikrii, S. Eidelman, V. Yavorskij, and V. Zadorozhny in J. Nonlinear Analysis Real World Applications (NONRWA), 6, 2005, 417-428; (2005).
213. "On the Vlasov-Maxwell equations" With V. Zadorozhny and Z. Parsa. Conf. Proc. C 0505161, 2654 (2005). PAC-2005-TPAT041; (2005).
212. "Actual stationary state for plasma lens" With V. Zadorozhny, A. Goncharov and Z. Parsa; Conf. Proc. C 0505161, 2619 (2005); PAC-2005-TPAT040
211. "Acceleration and focusing as optimal control for dynamic systems" Z. Parsa and V. Zadorozhny; (2004)
210. "Physics of an intense neutrino beam from BNL to a very long baseline detector" Z. Parsa; DOI:10.1063/1.1664248; AIP Conf. Proc. 698, 307 (2004).
209. "Neutrino electron scattering theory" W. J. Marciano and Z. Parsa. Hep-ph/0403168 DOI:10.1088/0954-3899/29/11/013 J. Phys. G 29, 2629 (2003).
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206. "Acceleration and Self Focused Particle Beam Drivers" V. Zadorozhny and Z. Parsa; Conf. Proc. Int. C 030512, 3005; Portland, USA. (2003); PAC03-RPAG059(2003)
<http://accelconf.web.cern.ch/AccelConf/p03/PAPERS/RPAG059.PDF>
205. "Control Theory to Accelerator Research and Self-Focused Bunched Beam" Z. Parsa, V. Zadorozhny and A. Rudenko, Proc. Int. Conf. Physics and Control (PhysCon 2003, August 20-22, 2003, Saint-Petersburg, RUSSIA, Vol. 3.6 Beam Dynamics: Modeling, Control and Optimization, pp. 991-997.).
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204. "Very long baseline neutrino oscillation experiments for precise

measurements of mixing parameters and CP violating effects” With M. V. Diwan et al.; hep-ph/0303081; DOI:10.1103/Phys.Rev.D.68.012002 (2003).

203. “Intersections of particle and nuclear physics”; Z. Parsa (editor), AIP 698 (2003); 1000 pages; AIP-Press Melville, NY. Proceedings of the 8th Conference; CIPANP 2003, New York, May 19-24, 2003. ISBN 0-7354-0169-1, Printed in USA.

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193. “Proposal to Measure the Efficiency of Electron Charge Sign Determination up to 10 GeV in a Magnetized Liquid Argon Detector (LANNDD)”; With M. V. Diwan et al.; BNL-P-0965; (2002).

192. "Neutrino oscillation experiments for precise measurements of oscillation parameters and search for muon-neutrino to electron-neutrino appearance and CP violation: Letter of intent to Brookhaven National Laboratory"; With D. Beavis et al.; hep-ex/0205040; (2002).
191. "E1 Working Group summary: Neutrino factories and muon colliders" With T. Adams et al.; hep-ph/0111030; eConf C 010630, E1001 (2001); FERMILAB-CONF-01-307-T, MADPH-01-1243, SNOWMASS-2001-E1001; (2001).
190. "Deterministic Chaos", Z. Parsa, V. Zadorozhny; in Proceedings of Particle Accelerator Conference, Chicago, Ill, (2001).
189. "Exact solution of selfconsistent Vlasov-Poisson equation", Z. Parsa, V. Zadorozhny, Proceedings of ICAPC-2000 (2001).
188. "Nonlinear Dynamics on Compact and Beam Stability, Journal of Nonlinear Analysis"; Z. Parsa; 47 (2001) 4897-4904, published by Elsevier Science Ltd., (2001).
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186. "Higgs Factory and Potentials" Z. Parsa. Conf. Proc. C 0106181, 3338 (2001); PAC-2001-RPPH049. (2001)
185. "Neutrino Factory based on Muon-Storage-Rings to Muon Colliders: Physics and Facilities" Z. Parsa. Conf. Proc. C 0106181, 3335 (2001); PAC-2001-RPPH048, BNL-68719. (2001)
184. "The Chaotic Behavior of the Bunched Beam" Z. Parsa and V. Zadorozhny; AIP, Conf. Proc. C 0106181, 1673 (2001); PAC-2001-TPPH009; (2001).
183. "Deterministic Chaos", Z. Parsa, V. Zadorozhny, in Proceedings of Particle Accelerator Conference, Chicago, Ill, (2001).
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173. "Muon Sources - Factory to + Colliders"; Z.Parsa; AAC2000, June2000; in AIPCP569, ed.P.L. Colestock and S. Kelly, p.890-902(2001).13pages.

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***** This is a DRAFT, to be checked and completed *****