# CURRICULUM VITAE

### PERSONAL DATA

#### Lawrence Steven Pinsky

John and Rebecca Moores Professor of Physics Chairperson, Physics Department University of Houston Born, August 9, 1946, New York, New York Married, three children Attorney at Law

### EDUCATION

LL.M. (Information and Intellectual Property Law) Univ. of Houston, Houston, Texas (2001) Thesis: "The Emperor's New Database," Prof'. Raymond Nimmer, advisor
J.D. (Law-*magna cum laude*) University of Houston, Houston, Texas (1997)
Ph.D. (Physics) University of Rochester, Rochester, New York (1973) Thesis: "A Study of the Heavy Trans-Iron Primary Cosmic Rays (Z> 55) with a Fast Film Cerenkov Detector," Prof. Gautam Badhwar, advisor
M.A. (Physics) University of Rochester, Rochester, New York (1969)
B.S. (Physics) Carnegie Mellon University, Pittsburgh, Pennsylvania (1968)

# **PROFESSIONAL AFFILIATIONS & HONORARY SOCIETIES**

#### Physics:

American Physical Society-Division of Particle and Fields, Nuclear Physics Section, Cosmic Physics Section IEEE Sigma Pi Sigma Sigma Xi

#### Law:

Admitted to practice before: Texas State Courts, Southern District of Texas Federal Courts and the United States Patent and Trademark Office Phi Kappa Phi

American Intellectual Property Law Association Computer Law Association Texas Bar Association

### **Research Collaborations:**

The FLUKA Collaboration (CERN, INFN-Milan) (Member of the FLUKA Scientific Committee)

The ALICE Collaboration (CERN) (ALICE-USA Deputy Council Chair)

The Medipix2 and Medipix3 Collaborations (CERN)

# CHRONOLOGY OF EXPERIENCE

2009-present—John and Rebecca Moores Professor of Physics

1995-present—Chairperson, University of Houston, Physics Department.

1990-present—Professor of Physics, University of Houston, Physics Department. Full time teaching duties both graduate and undergraduate, and research in the areas of 1) space radiation simulation, 2) relativistic and intermediate energy heavy ion physics, 3) charged particle detector development for space radiation dosimetry, 4) Grid Computing, and 5) cosmic ray astrophysics.

1981-1990—Associate Professor of Physics, University of Houston, Physics Department. Full time teaching duties both graduate and undergraduate, and research in the areas of: 1) experimental elementary particle physics, 2) nucleon structure functions, 3) rare muon decay physics, 4) neutrino astrophysics, 5) nucleon-antinucleon physics, 6) Medium Energy Physics; and 7) particle detector development

1975-1981—Assistant Professor of Physics, University of Houston, Physics Department. Performed full time teaching duties and research in the areas of: 1) Medium Energy Physics, 2) primary trans-iron cosmic rays, 3) laser microfluorometry, 4) heavy ion dosimetry, 5) charged particle visual light flash phenomena, and 6) transition radiation.

1972-1975—Postdoctoral Fellow, Physics Department, University of Houston. Performed research in the areas of: 1) primary trans-iron cosmic rays, 2) transition radiation, 3) charged particle induced visual light flashes, 4) neutrino astrophysics, 5) laser driven flow microfluorometer, and 6) heavy ion dosimetry.

1969-1972—2Lt-1Lt-Capt, United States Army Corps of Engineers, primary duty station: NASA, Johnson Space Center (Manned Spacecraft Center), Houston, Texas. Performed research in the areas of: 1) primary trans-iron cosmic rays, 2) charged particle induced visual light flashes, 3) heavy ion dosimetry. During this period concurrent enrollment was maintained at the University of Rochester, where the degree requirements for the Ph.D. were satisfied.

### THESIS SUPERVISED

"A Practical Pressed Powder Silica Cherenkov Counter," by Robert W. Hackenburg, Masters Thesis, May, 1981.

"Spin Dependence for Reaction  $p + p \rightarrow p + \pi^+ + n$  at 800 MeV with Polarized Beam and Unpolarized Target," by Arthur Dayle Hancock, Ph.D. Thesis, August 1981.

"Measurement of the np Annihilation Cross-Section Near NN Threshold," by Yuyi Xue, Ph.D. Thesis, February, 1985.

"Measurement of the X and Q<sup>2</sup> Dependence of Nuclear Structure Functions," Ioannis Tzamouranis, Ph.D. Thesis, March, 1992.

"Light Ion Fluxes Near Mars As Measured By the MARIE Instrument On the Mars Odyssey Spacecraft," by Kerry Lee, Ph.D. Thesis, June 2006. "A Hamiltonian Molecular Dynamics Intermediate Energy Heavy Ion Event Generator," by Neal Zapp, Ph.D. Thesis, June, 2007.

"Measurement of Elemental Cross Section for C, Si and Fe at 5 GeV/A," by Najib Elkhayari, Ph.D. Thesis, August 2008.

"Modification of the Relativistic Heavy Ion Event Generators in FLUKA in the 3-10 GeV/A Energy Region," by Brandon Reddell, Ph.D. Thesis, December, 2010.

"Identified Particles in High- $P_T$  Jets in p-p collisions at ALICE," by Dilan Minthaka Madagodahettige Don, Ph.D. Thesis, (graduation expected June 2011).

"Development of a Space Radiation Dosimeter based on the Medipix2 Technology," by Nicholas Stoffle, Ph.D. Thesis, (graduation expected June 2012).

**UNIVERSITY SERVICE 1975-2010** (\*Indicates Current Position)

#### University

University Hon	ors Council (25 years)*
Copyright Polic	cy Development (1 year)
Committees:	Publications (3 years)
	Scholarship (1 year)
	Radiation Safety Committee (12 years as Chair)*
	Athletic Advisory Committee (3 years)
	Intellectual Property Committee (2 years, 1 as Chair)*
	Conflict of Interest Committee (1 year)*
College of Natural	Science and Mathematics
Committees:	College Undergraduate Curriculum, (3 years)
	College Government (10 years)
	Computer Use Fee (1 year)
<b>Physics Departmen</b>	t
Department Cl	hair—15 years*
Committees:	Undergraduate Studies (15 years - 6 as Chair)
	Personnel (8 years)
	Recruiting (11 years - 2 as Chair)
	Library (6 years - 1 as Chair)
	Seminar (8 years - 1 as Chair)
	Department Development Plan (Chair, 2 years)
	Executive (2 years)
Sponsorships:	Society of Physics Students (18 years)
	Sigma Pi Sigma (18 years)
	Houston Astronomical Society/UH Student Observatory Director (28
years)*	
Administration	: Undergraduate Advisor (12 years)
	Assistant Chairperson (2 years)

John and Rebecca Moores Professor, 2010

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Outstanding Educator, University of Houston, 1989-1990,
Mortar Board National Honor Society.
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University of Houston Enron Teaching Excellence Award, 1994.

College of Natural Science and Mathematics Teaching Excellence Award, 1994

"Rookie Dickerson" Outstanding Educator Award, 1995.

Law Review, University of Houston (1995).

Phi Kappa Phi (1995).

Order of the Barons (1995).

Corpus Juris Secundum (Contract Law) (1995).

Order of the Coif, University of Houston (1997)

NASA Distinguished Service Award (MARIE Experiment) 2005

# HISTORY OF FUNDING SUPPORT

1970-72	NASA	"Fast Film Cerekov Detector"*** \$	120,000
1973-74	NASA	"HZE Dosimetry on Apollo"*	30,000
1975	NASA	"HZE on ASTP"*	10,000
1975	UH	Research Initiation Grant***	20,000
1973-77	NASA	"Apollo and Skylab Light Flash Investigations*	100,000
1976-79	DOE	"Pion Interactions at Medium Energies"*	400,000
1979-80	DOL	"Pion Interactions at Intermediate Energies"*	200,000
1979-80	NSF	"International Meeting Travel Grant"	2,000
1980-81	DOE	"Pion Interaction at Intermediate Energies"**	220,000
1981-84	DOE		906,000
		'Pion Interaction at Intermediate Energies"**	1,029,000
1985-88	DOE	"Hadronic Interactions at Intermediate Energies"**	1,029,000
1988-91	DOE	"Selected Problems in Experimental Intermediate	1 205 000
1001 04	DOF	Energy Physics"**	1,365,000
1991-94	DOE	"Selected Problems in Experimental Intermediate Energy Physics"**	2,600,000
1992			
1992	ISSO (UH)	"Development of Computer Simulations of the Radiat	
1002.02		Environment within Spacecraft or Space Stations	
1992-93	UH-CUF	"Development of an Undergraduate Computer Lab"*	
1993	UH-CUF	"Development of Computer Simulations of the Radiat	
1002.04		Environment within Spacecraft or Space Stations	
1993-94	UH-CUF	"Development of an Undergraduate Computer Lab"*	
1993-94	DOE	"Gamma Electrons & Muons R&D"***	50,000
1994	ISSO (UH)	"Development of Computer Simulations of the Radiat Environment within Spacecraft or Space Stations"	
1994-97	DOE	"Selected Problems in Experimental Intermediate	2,000
1,320,000	DOL	Selected Problems in Experimental intermediate	
1,320,000		Energy Physics"**	
1994-95	DOE	"SSC GEM Completion of Effort"***	28,000
1994-95	NASA	"Monte Carlo Simulation of the Space Radiation	28,000
1993-90	NASA	Environment"***	67.000
1007.00	DOF		67,000
1997-00	DOE	"Selected Problems in Experimental Intermediate	
1,389,000			
1000.01		Energy Physics"**	<u> </u>
1999-01	ISSO (UH)	"Post-Doctoral Aerospace Fellowship Program"***	60,000
2000-03	NASA	"Development of a Space Radiation Monte-Carlo Com	•
0001		Based on the FLUKA and ROOT Codes"***	430,000
2001	ISSO (UH)	"Graduate Student Research Assistantship Stipend"*	
2001-02	NASA	"Analysis of Data from the MARS '01 MARIE Experime	
2002-03	ISSO (UH)		40,000
2002	ISSO (UH)		10,000
2002-03	ARP (TX)	"Analysis of CME's in the MARIE Data"***	106,000
2002-04	NASA	"Analysis of Data from the MARS '01 MARIE Experime	
2002		) "CERN/ALICE Grid-Related Software Development"**	
2003		) "CERN/ALICE Grid-Related Software Development"**	
2002-06	NASA	"Space Radiation Transport Code Development"***	687,000
2004		) "CERN/ALICE Grid-Related Software Development"**	
2004-05	NASA	"Analysis of CME's in the MARIE Data"***	53,000
2005-07	NASA	"Analysis of ISS Dosimitry Data"*** (Annual-continui	ng) 100.000

2007-08	NASA	"HZETRN2005 Benchmarking and Validation Support Utilizing FLUKA	
		Monte Carlo"*** 155,000	
2007-10	DOE	"Selected Problems in Relativistic Heavy Ion Physics"*** 721,000	
2008	NASA	"Adding Dose Equivalent to FLUKA"*** 65,000	
2010-13	DOE	"Selected Problems in Relativistic Heavy Ion Physics"** 1,500,00	
2011	NASA	"Medipix Space Radiation Dosimeter Evaluation Proj."*** 230,000	

Total \$12,861,000

\* Designated Participant
\*\* Co-Investigator
\*\*\* Principal Investigator

# EXTERNAL PROFESSIONAL ACTIVITIES

Co-organizer of the Fermilab Winter Workshop on an Antiproton Storage Ring Member AGS High Energy Equipment Pool Committee (1984-present) Member LAMPF Users Group (1981-1995) Member of TRIUMF Users Group Member of Fermilab Users Group Chairman LAMPF Nucleon Physics Laboratory Working Group (1979-1981) Visiting Scientist, Brookhaven National Laboratory (continuing appointment since 1978) Visiting Scientist, TRIUMF, Vancouver, Canada (continuing appointment since 1986) Visiting Scientist, Fermilab, Batavia, IL (continuing appointment since 1985) Visiting Scientist, CERN, Geneva, Switzerland (continuing appointment since 1988) Visiting Scientist, SSCL, Waxahatchie, TX (1992-94) Selected as one of the 100 finalist candidates for the Space Shuttle Mission Specialist Astronaut Program (1977) Undergraduate and Graduate Textbook Reviewer (McGraw-Hill, Addison-Wesley, Allyn & Bacon, Wadsworth, Wiley, Saunders, Simon & Schuster, Harcourt-Brace, Prentice-Hall) Advisor, Houston Astronomical Society Association (Adjunct Faculty) Inst. Cosmogeofisica, University of Torino, Torino, Italy (1989-) Invited M.S. Thesis Committee Member, University of Zagreb, Yugoslavia (Croatia), 1988 Invited Ph.D. Thesis Committee Member, University of Santiago, Spain, 1994 Member NASA Radiation Shielding Materials Workshop, LBNL, 2000 Member ALICE Computing Board (2002-Present) Member LHC Grid-Deployment Board (2005-Present) Member and Council Chair ALICE-USA (2006-Present) Member ALICE Collaboration Board (2008-Present)

### RECENT AND CURRENT RESEARCH INTERESTS

Heavy Ion Interactions (Intermediate and Relativistic) Space Radiation Dosimetry Pixel Detector-based Dosimetry Grid Computing Nucleon Structure Functions Medium Energy Physics Simulation of the Radiation Environment in Space Cosmic Ray Astrophysics Rare Muon Decay Physics Neutrino Astrophysics High Speed Data Acquisition Electronics Design Wire Chamber and Solid State Tracking Detector Technology Development

### PRESENT ACTIVE EXPERIMENTS

(\*Indicates spokesperson for UH group participation) CERN (Geneva Switzerland) ALICE "A Large Ion Collider Experiment" at CERN/LHC\*, Medipix2 Collaboration (CERN) Development of a Pixel-Based Space Radiation Dosimeter NASA (CERN and JSC) Development of a Monte-Carlo simulation based on the FLUKA and ROOT codes,\* & Space Radiation Transport Consortium.\* Development of a Medipix-based dosimeter for Space Radiation Use.\*

# INVITED & PLENARY TALKS (Since 2003)

#### Physics:

"Heavy Ions at LHC," Colloquium, University of Dallas, Dallas, TX, Nov. 2003.

- "Jet Physics in ALICE and a Proposed Electromagnetic Calorimeter," Colloquium, Clermont Ferrand University, Clermont-Ferrand, France, Dec. 2003
- "Jet Physics in ALICE and a Proposed Electromagnetic Calorimeter," Colloquium, Hong Kong Baptist University, Hong Kong, Feb. 2004.
- "NASA's Interest in Cosmic Ray Radiation," Invited Talk, Vulcano Workshop, Vulcano Island, Italy, May 2004.
- "Event Generators for Simulating Heavy Ion Interactions to Evaluate the Radiation Risks in Spaceflight," Invited Talk, IEEE Aerospace Conference, Big Sky, Montana, March, 2005.
- "The Use of Voxel-Based Human Phantoms in FLUKA," Invited Talk, Monte Carlo 2005, Chattanooga, TN, April 2005.
- "The Use of Voxel-Based Human Phantoms in FLUKA," Invited Talk, ENILGHT meeting, Oropa, Italy, June 2005.
- "Surviving in Space: The Challenges of a Manned Mission to Mars," Invited 3-Lecture Series, CERN Academic Lecture Series, CERN, Geneva, Switzerland, October 2005.
- "Update on the Status of The FLUKA Code," Invited Talk, Computing in High Energy Physics (CHEP'04), Mumbai, India, Feb. 2006.
- "Update on the Status of FLUKA, Including Preliminary Results from the July 2005 AGS Run," Invited Talk, IEEE Aerospace Conference, Big Sky, Montana, March, 2006.
- "Use of Medipix Technology as a next generation space radiation dosimeter," Invited Talk, Space Radiation Detection Workshop, USRA, Clear Lake City, Texas, April 5-7, 2006.
- "LHC Grid Computing and ALICE," Invited Talk, GELATO-ICE, San Jose, California, April 24, 2006.
- "Simulating High Radiation Environments," Invited Talk, Materials Research Society Annual Meeting, San Francisco, California, April 21, 2006.
- Organizer and Session Chair, Space Radiation Modeling and Measurements, 36<sup>th</sup> COSPAR, Beijing, China, August 16-23, 2006.
- "Space Radiation Concerns in going to the Moon and Mars," Inviited Talk, Fudan University, Shanghai, July 24, 2006.

- "Development of the Medipix Technology for use in Spade Radiation Dosimetry," 11<sup>th</sup> WRMISS (Workshop of Radiation Measurements on the International Space Station), St. Peter's College, Oxford University, Sept. 6-8, 2006.
- "UH & TLC2 @ CERN & NASA," Invited talk, HiPCAT (High Performance Computing Across Texas) Meeting, Houston, Texas, Sept 22, 2006.
- "Update on Grid Computing at the LHC," Invited Talk, GELATO-ICE, Singapore, Oct. 2, 2006.
- "ALICE Grid Computing at the LHC," Invited Talk, Singapore National Grid Fourm, Singapore, Oct. 3, 2006.
- CERN Academic Lecture Series, "Surviving in Space," (3 Lectures), CERN, Geneva, Switzerland, Sept 26-28, 2006.
- "Status of the AGS Data Analysis," Invited Talk, Workshop on the future of NASA Space Radiation Research, NASA Langley Research Center, Newport News, Virginia, Jan. 24, 2007.
- "Space Radiation Concerns in Going to the Moon and Mars," Colloquium, Northwestern University, Evanston, Illinois, January 26, 2007.
- "Development of Medipix Technology for use as Charged Particle Detectors in Space Radiation Dosimetry Applications," Invited Seminar, Toho University, Tokyo, Japan, February 8, 2007.
- "Developing a Space Radiation Dosimeter Based on the Medipix Technology," Invited Talk, IEEE Aerospace Conference, Big Sky, Montana, March 6 ,2007.
- "Developing a Space Radiation Dosimeter Based on the Medipix Technology," Invited Talk, Journal Club, NASA JSC, Houston, Texas, May 4, 2007.
- "MEDIPIX: Status Update For An Active Real-time Space Radiation Dosimeter" 12<sup>th</sup> WRMISS (Workshop of Radiation Measurements on the International Space Station), Oklahoma State University, Stillwater, OK, Sept. 11, 2007.
- "Evolving the Medipix2 Technology For Use As An Active Space Radiation Dosimeter," Invited Talk, IEEE Aerospace Conference, Big Sky, Montana, March 6,2008.
- "UPDATE on the Status of the Development of a New Active Dosimeter for Use in Space Radiation Environment Based on the MEDIPIX2 Technology" 13th WRMISS (Workshop of Radiation Measurements on the International Space Station), Krakow, Poland, Sept, 10, 2008.
- "Penetrating Heavy Ion Charge and Velocity Discrimination with a TimePix-based Si Detector" 11th International Workshop on Radiation Imaging Detectors, Prague, Czech Rep, June 29-July 2, 2009.
- Special Lecture Series delivered at "The Fifth International Student Summer School on "Nuclear Physics Methods and Applications in Biology and Medicine," (5 Lectures including An

Introduction to the School, Surviving in Space and an Introduction to Medipix2), Bratislava, Slovak Republic, July 4-8, 2009.

- "UPDATE on the Status of the Development of a New Active Dosimeter for Use in Space Radiation Environment Based on the MEDIPIX2 Technology" 14th WRMISS (Workshop of Radiation Measurements on the International Space Station), Dublin, Ireland, Sept, 10, 2009.
- "Making Use of the Medipix2-Based TimePix Technology To Characterize Hadron Therapy Environments," Invited Talk, IEEE Nuclear Science Symposium—Workshop on Hadron Therapy, Orlando, Florida, October, 29, 2009.
- "Application of the Medipix2 Technology to Space Radiation Dosimetry and Hadron Therapy Beam Monitoring," Plenary Talk, 12<sup>th</sup> Vienna Conference on Instrumentation-2010, Vienna, Austria, February 20, 2010.
- "Heavy Ion Charge and Velocity Resolution with a Medipix-Based Active Space Radiation Dosimeter," Invited Talk, IEEE Aerospace Conference, Big Sky, Montana, March 12, 2010.
- 'Summary of HIMAC Measurements with the TimePix version of the Medipix2-Based Detectors and Preparation for the First Flight of Medipix in Space." 15<sup>th</sup> WRMISS (Workshop of Radiation Measurements on the International Space Station), Frascati, Italy Sept, 9, 2010.
- "Application of the Medipix2 Technology to Space Radiation Dosimetry and Hadron Therapy Beam Monitoring," Invited Talk, Solid State Dosimetry Conference (SSD-16), Sydney Australia, Sept. 24, 2010.

### Invited Law Talks (Since 1997):

- "The Use of Special Masters in Patent Law Cases in the U.S.", Alternate Dispute Resolution Conference, University of Tubingen, Tubingen, Germany, May 1997.
- "Domain Name Dispute Resolution," Max Planck Institute for Intellectual Property, Munich, Germany, January 14, 1998.
- "Database Protection", ", Max Planck Institute for Intellectual Property, Munich, Germany, January 14, 1998.
- "Copyright Law and Distance Education," Computers Online Workshop, Houston, TX, May 16-18, 2000.
- "Intellectual Property Law for University Researchers," Colloquium, University of Michigan, Ann Arbor, Oct. 2003.
- "Intellectual Property Law for University Researchers," Colloquium, University of Dallas, Dallas, Nov. 2003.
- "Intellectual Property Law for University Researchers," Colloquium, Hong Kong University of Science and Technology, Hong Kong, Feb. 2004

- "Intellectual Property Law for University Researchers," Colloquium, Hong Kong Baptist University, Hong Kong, Feb. 2005
- "Aspects of IP Law for High Energy Physics Software Developers," Invited Talk, International Workshop on Large Scale Computing, VECC, Kolkata, India, Feb. 10, 2006
- "Intellectual Property Law for Academic Researchers," Seminar, University of Houston at Clear Lake, Clear Lake City, Texas, March 1, 2007.
- "Aspects of IP Law for High Energy Physics Software Developers," Invited Talk, XII International Workshop on Advanced Computing and Analysis Techniques in Physics Research, Erice, Sicily, Nov. 4, 2008
- "Internet Law for Physicists," Invited Talk, XIII International Workshop on Advanced Computing and Analysis Techniques-Special Student Seminar, Jaipur, India, Feb. 22, 2010.

### CONTRIBUTED PAPERS

(An average of 5-10 such contributions have been made each year to professional meetings, workshops and laboratory pre-prints. Most of those contributions have been published unrefereed as Conference Proceedings. Where the contributions are ultimately published as refereed publications, they are listed as such below.)

### PROCEEDINGS EDITED

Proceedings of the First Workshop on Antimatter Physics at Low Energy, L. S. Pinsky and B. E. Bonner, eds., FNAL, Batavia, IL, July 1986 (486 pages).

### CONFERENCE ORGINIZING

CHEP'06 (Computing in High Energy Physics), Program Committee, Mumbai India, Feb. 2006.

- Varenna'06 (11<sup>th</sup> International Conference on Nuclear Reaction Mechanisms), Varenna, Italy, June, 2006.
- COSPAR'06 (Committee On Space Research), Scientific Congress, Beijing, China, July 2006.

## REFEREED PUBLICATIONS - L. S. PINSKY (12/20/2010) [Author Lists Suppressed]

### Physics Publications (160 Total ):

- 1. VISUAL SENSATIONS INDUCED BY RELATIVISTIC NITROGEN NUCLEI, Science **178** (1972) 160.
- VISUAL LIGHT FLASH PHENOMENA, <u>Apollo 16 Preliminary Science Report</u>, NASA SP-315, National Aeronautics and Space Administration, Washington, D. C. 20546, (1972) p. 271-277.
- 3. CHARGE AND ENERGY SPECTRA OF TRANSIRON COSMIC RAYS, Phys. Rev. D1 (1973) 3220.
- 4. ENERGY SPECTRUM OF NUCLEI WITH  $Z \ge 60$  AS EVIDENCE FOR A NEW SOURCE OF COSMIC RAYS, Phys. Rev. Lett. **37** (1973) 127.
- VISUAL LIGHT FLASH PHENOMENA, <u>Apollo 17 Preliminary Science Report</u>, NASA SP-330, National Aeronautics and Space Administration, Washington, D.C. 20546, (1974)pp.(27-1)-(27-6).
- 6. *LIGHT FLASHES OBSERVED BY ASTRONAUTS ON APOLLO 11 THROUGH APOLLO 17,* Science **183** (1974) 957.
- 7. DETECTION OF X-RAY TRANSITION RADIATION VIA COMPTON SCATTERING, Phys. Rev. Lett. **33** (1974) 1582.
- 8. EVIDENCE FOR DETECTION OF A MOVING MAGNETIC MONOPOLE, Phys. Rev. Letter **35** (1975) 487.
- APOLLO LIGHT FLASH INVESTIGATIONS, <u>Biomedical Results of Apollo</u>, NASA SP-368, National Aeronautics and Space Administration, Washington, D. C. 20546 (1975) p. 355-367.
- LIGHT FLASHES OBSERVED ON SKYLAB 4, <u>Biomedical Results of Skylab</u>, NASA SP-377, National Aeronautics and Space Administration, Washington, DC 20546, (1977) pp. 127-131.
- 11. LIGHT FLASHES OBSERVED BY ASTRONAUT ON SKYLAB 4, Science 188, 920 (1975).
- 12. PION PRODUCTION FOR THE PD  $\rightarrow D\pi^+ N$  REACTION AT 585 MEV, Phys. Rev. C17 (1978) 259.
- 13. FURTHER MEASUREMENTS AND REASSESSMENT OF THE MAGNETIC MONOPOLE CANDIDATE, Phys. Rev. D18 (1978) 1382.
- 14. MEASUREMENT OF THE TRANSVERSE SPIN DEPENDENCE OF THE PP TOTAL CROSS SECTION IN THE 1-3 GEV/C REGION, Phys. Lett. **B73** (1978) 235.
- 15. PRODUCTION OF THE  $\Delta^{++}$  IN THE REACTION PP  $\rightarrow P\pi^+N$  AT 800 MEV, Phys. Rev. C18 (1978) 2666.

- 16. *PION PRODUCTION IN THE REACTION D(P;D,π<sup>+</sup>)N AT 800 MEV*, Phys. Rev. **C20** (1979) 1479.
- 17. REACTION MECHANISMS AND ISOSPIN EFFECTS FOR THE  $\pi + D \rightarrow P + \pi + N$  PROCESS AT P = 340 MEV/C, Phys. Lett. **B88** (1979) 73.
- 18. STATES OF <sup>12</sup>C FORMED IN THE REACTION <sup>12</sup>C( $K^-$ ,  $\pi^-$ ), Phys. Lett. **B89** (1979) 31.
- 19. REACTION  $P+D \rightarrow P\pi^+N$  IN THE D RESONANCE REGION, Phys. Rev. C23 (1981) 407.
- 20. ANGULAR DISTRIBUTION OF THE REACTION PD  $\rightarrow$  3HE $\pi^{\circ}$  AT 800 MEV, Phys. Rev. C23 (1981) 1656.
- 21. OBSERVATION OF LEVELS IN <sup>13</sup>C, <sup>14</sup>N AND <sup>18</sup>O HYPERNUCLEI, Phys. Rev. Lett. **47** (1981) 1106.
- 22. KAON-NUCLEUS SCATTERING FROM C AND CA AT 800 MEV/C, Phys. Rev. C25 (1982) 2619.
- 23. EXPERIMENTAL OBSERVATION OF THE Σ HYPERNUCLEI, <sup>6</sup>H AND <sup>12</sup>C, Phys. Lett. **B110** (1982) 428.
- 24. EXPERIMENTAL STUDY OF THE  $\Sigma^{-}$  NUCLEON SYSTEM THROUGH THE REACTION  $^{2}H(K,\pi)$   $\Sigma N$ , Phys. Rev. **C25** (1982) 1079.
- 25. ASYMMETRIES AND CROSS-SECTIONS FOR THE REACTION ON  $P + P \rightarrow P + \pi^+ N AT$ 800 MEV, Phys. Rev. **C27** (1983) 2742.
- 26. CHARACTERISTICS OF A PRESSED SILICA POWDER CERENKOV DETECTOR, Nucl. Inst. and Meth. A226 (1984) 361.
- 27. PION SCATTERING FROM C AND CA AT 800 MEV/C, Phys. Rev. C30 (1984) 1662.
- 28. TRANSVERSE-SPIN DEPENDENCE OF THE P-P TOTAL CROSS-SECTION Δσ<sub>T</sub> FROM 0.8 TO 2.5 GEV/C, Phys. Rev. D31 (1985) 966.
- 29. OBSERVATION OF  $\Lambda$ -HYPERNUCLEI IN THE  ${}^{12}C(\pi^+,K^+)\wedge C^{12}$  REACTION, Phys. Rev. Lett. **54** (1985) 1237.
- 30. A SEARCH FOR NARROW STATES IN ANTINEUTRON-PROTON TOTAL AND ANNIHILATION CROSS SECTIONS NEAR NN THRESHOLD, Phys. Lett. **B175** (1986) 383.
- 31. SPIN TRANSFER IN HYPERON PRODUCTION, Phys. Rev. Lett. 58 (1987) 447.
- 32. MEASUREMENT OF ANTINEUTRON-PROTON TOTAL AND ANNIHILATION CROSS SECTION FROM 100-500 MEV/C, Phys. Rev. D36 (1987) 659.
- 33. *MEASUREMENT OF THE IMAGINARY PART OF THE I = 1 NN S-WAVE SCATTERING LENGTH,* Phys. Rev. **D38** (1988) 742.

- 34. LVD AT GRAN SASSO, LVD COLLABORATION, Nucl. Inst. Meth., A264 (1988) 5.
- 35. SPIN PARAMETER MEASUREMENTS IN Λ AND K<sub>S</sub> PRODUCTION, Phys. Rev. D38 (1988) 729.
- 36. OBSERVATIONS OF HYPERON-NUCLEON SYSTEMS PRODUCED ON <sup>12</sup>C AND <sup>7</sup>LI TARGETS USING THE ( $K^-$ ,  $\pi^+$ ) REACTION AT 715 MEV/C, Phys. Rev. **C38** (1988) 846.
- 37. *MEASUREMENT OF THE*  $\pi^+D \rightarrow \Delta^{++}N$  *AT INTERMEDIATE ENERGY,* Phys. Rev. **C38** (1988) 2716.
- 38. SPIN PARAMETER MEASUREMENTS IN INCLUSIVE  $\Sigma^{\circ}$  PRODUCTION, Phys. Rev. Lett. **62** (1989) 1591.
- 39. THE LARGE VOLUME DETECTOR (LVD) A MULTIPURPOSE UNDERGROUND DETECTOR AT GRAN SASSO, Nucl. Inst. & Meth. A277 (1989) 11.
- 40. THE LVD EXPERIMENT DATA ACQUISITION SYSTEM, IEEE Trans. Nucl. Sci. 36 (1989) 1635.
- 41. ANALYZING POWER OF INCLUSIVE PRODUCTION OF  $\pi^+$ ,  $\pi^-$ , AND  $K_O(S)$  BY POLARIZED PROTONS AT 13.3 GEV/C AND 18.5 GEV/C, Phys. Rev. **D41** (1990) 13.
- 42. FIRST OBSERVATIONS OF HIGH ENERGY COSMIC RAY EVENTS OBTAINED IN COINCIDENCE BETWEEN EAS-TOP AND LVD AT GRAN SASSO, Nuovo Cim. **105A** (1992) 1815.
- 43. FIRST RESULTS OF A SEARCH FOR NEUTRINOS FROM COLLAPSING STARS WITH THE LVD AT GRAN SASSO, Nucl. Phys. Proc. **Suppl. 31** (1992) 450.
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