

March 7, 2008

## CURRICULUM VITAE

### JORDAN A. GOODMAN

#### I. Education:

Undergraduate: B.S., Physics, University of Maryland - 1973  
Graduate: M.S., Physics, University of Maryland - 1975  
Ph.D., Physics, University of Maryland - 1978

#### II. Employment:

1990 - present Professor of Physics, Univ. of Maryland  
1999 – 2006 Chair, Department of Physics, Univ. of Maryland  
1985 - 1990 Associate Professor, Univ. of Maryland  
1980 - 1985 Assistant Professor, Univ. of Maryland  
1978 - 1980 Research Associate, Univ. of Maryland  
1974 - 1978 Research Assistant, Univ. of Maryland  
1973 - 1974 Teaching Assistant, Univ. of Maryland  
1970 Summer Museum Aide, National Air & Space Museum,  
Washington, DC  
1967 - 1969 Student Aide, National Institutes of Health,  
Bethesda, MD  
1971 - 1980 Photographer (Free lance)

#### III. Teaching at University of Maryland:

Physics 106 – Fall 2006  
Physics 111 – Fall 2002 (substitute for C. Alley)  
Physics 104 - Spring 1999 (New Course)  
Physics 174 - Spring 1997- Spring 1998 (New Course)  
Physics 262A - 1995, Spring 1996, Fall 1996 (Revised and Taught)  
Physics 263A - 1995, Spring 1996, Fall 1996 (Revised and Taught)  
Physics 106 - 1985, 1986, 1987, 1988, 1993  
Physics 272 - Fall 1989; Spring, 1991, 1992, 1993  
Physics 273 - Spring 1990; Fall 1990, 1991  
Physics 121 - Fall 1992  
Physics 121, 122 Labs. 1987  
Physics 161 - 1980  
Physics 171 - Spring 1989  
Physics 262 - 1979, 1981, 1983  
Physics 263 - 1979, 1981  
Physics 296 - 1988  
Physics 429/621 - 1982, 1983, 1984, 1985

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### **IV. Research Activities:**

Spokesperson for MILAGRO Gamma Ray Experiment (35 physicists, 11 institutions)  
1992 -present

IceCube Collaboration – Kilometer cubed detector at the South Pole – 2003-Present

Super-Kamiokande Neutrino Experiment - Kamioka, Japan 1994-2004

Spokesperson for CYGNUS Experiment to search for primary gamma rays at  $10^{14}$  eV at  
Los Alamos National Laboratory 1985-1994 (28 physicists, 7 institutions)

Fermilab Experiment E710 - Measurement of elastic scattering and total cross section  
of p p at the Fermilab collider 1985-1991

Fermilab Experiment E672 - Dimuon and Jet experiment 1983-1985

Fermilab experiment E594 calorimeter to measure cosmic ray hadrons and muons,  
1982-1984

Measurement of the composition of flux of cosmic rays at 2900 M, Sacramento Ridge  
Cosmic Ray Laboratory (SRCRL), U. of MD., Sunspot, NM, 1973-1978

Delayed hadron experiment to measure composition and search for massive particles,  
College Park, MD 1979-1985

Search for massive new stable particles in cosmic ray showers, SRCRL, 1976-1978

Measurement of the primary composition above  $10^{13}$  eV by hadron arrival time studies,  
SRCRL 1976-1978

Direct balloon-borne measurement of the cosmic ray spectrum of protons and alphas by  
use of the Goddard, University of Maryland photon helium spectrometer (GUMPHS)

### **V. Honors and Awards**

Kirwan Prize for Undergraduate Education 2004

University of Maryland Academy of Excellence in Teaching and Learning 2002-present

Richtmyer Lecture – American Physical Society 2001

USM Regents Award for Excellence in Teaching 2000

UMCP Distinguished Scholar-Teacher Award 1999-2000

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Elected Fellow of the American Physical Society, 1997  
1994 Presidential Award for Outstanding Service to the Schools  
General Research Board of Graduate Studies Distinguished Faculty Fellowship for Academic year 1993-94 (one of five for UMCP)  
General Research Board of Graduate Studies and Research Semester Research Award for Fiscal year 1993-94 (Superseded by the above award)  
Certificate of Outstanding Teaching by the Panhellenic Association (the governing body of the 18 sororities on campus) 1993  
Nominated for Executive Committee of the Astrophysics Division of the APS - 1993  
Recognized as the most Influential Faculty member for Richard Durand (CMPS) 1997

## **VI. Departmental Service: (Physics, Univ. of MD)**

Chair – Department of Physics – 1999- 2006  
Berg Replacement Committee 2008  
Priorities Committee 2007-08  
Teaching Interview Committee 2006-08  
Co-Chair, Physics Majors Laboratory Committee 1996-1999  
Chair, Physics Faculty Assembly 1994-1999  
Physics Department Laboratory Committee 1994-1999  
Physics Undergraduate Education Committee 1994-97  
Undergraduate Recruitment Presentations 1997, 1998  
Search Committee - Joint Physics & Education Professorship 1997  
Ph.D. Final Oral Committee Jason Taylor 1998  
Ph.D. Final Oral Committees (Conner, Ptak, Audley, Saul) 1997  
Ph.D. Final Oral Committees (Dion and Allen) 1996  
PhD. Final Oral Committees (Stark and Bartlett) 1994  
Advisor for many Goddard Thesis Students  
Teaching Assistant Orientation and Training 1980-present  
Graduate Seminar Presentation 1996, 1998  
Chair, Assistant Professor Search Committee 1994-95  
Physics Representative to CMPS College retreat, June 1994  
Department Qualifying Problems and Oral Exam 1994  
Research Presentation Committees (Ptak and Pereyra) 1994  
Physics Chair Search Committee 1993  
Physics Salary Committee - 1992-1993  
Priorities Committee - 1992-1995  
Co-Chair Physics Colloquium Committee - 1991-92  
Graduate Education Committee 1987-1993  
Honors Committee 1981-1988 - Chairman 1986-1988  
High School Liaison Committee 1980-present  
Graduate Advisor 1981-1982; 1987-present

## **Jordan A. Goodman**

Teaching Evaluation 1980-1988  
Chairman: Technical Committee for High Energy Computer 1984-1996  
Physics Department Computer Network 1987-present  
Physics Olympics 1979-1988  
Student Physics Society Advisor 1981-1986  
Chairman, Intramural Athletics 1977-1982  
Physics Program Review Committee 1982  
Course Chairman Physics 161, 262, 263 - 1981  
Graduate Laboratory Chairman 1982-1984, 1988  
Chairman: Committee for the Engineering Seq., Text selection - 1981  
Technical Committee for High Energy Computer 1983- present  
Revision of Physics 121 curriculum 1993

## **VII. College and University Service:**

Chair IPST Director Review Committee 2007  
Marquee Course Committee 2007  
Member Orientation Review Committee 2006  
Panelist Worldwide Event November 2007  
Physical Sciences Core Review Committee 2007  
Board of Governors, UM Alumni Association, 1995- present  
Gemstone Advisory Committee 2002 - present  
College Park Scholars Advisory Committee 2001- present  
Orientation Speaker Summer 2006  
Speaker New Faculty Orientation 2004-Present  
Chair CS Chair Review Committee 2005  
Chair - ORAA Director Search 2004  
Chair – CMPS Development Director Search 2004  
Member VP for Research Search 2002  
Chair – IREAP Director Search 2001  
Member – IPST Chair Search 2001  
Chair University of Maryland Alumni Advocates Committee –2000-2001  
Campus APT Committee, 1997 - 1998  
Chair, Campus Senate Research Committee 1998-1999  
Campus Senate 1981-1983, 1987-1990, 1991-1993, 1996 - 1998  
Organizing Committee, Terrapin Pride Day 1997-98  
Academic Advocates Committee, University Alumni Association 1996  
Chair, Student Affairs Committee - Campus Senate 1991-1993  
Technology & Innovation Week Laboratory Contact 1995  
Keynote Speaker at Junior Science and Humanities Symposium for the State of Maryland, College Park, March 1994.  
Panelist for Teaching Matters, Sponsored by LILLY-CTE Teaching Fellows, April 1994  
Large Class TQI Committee - 1994

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UMCP Clerical Award Committee - 1994  
Summer Orientation Team - undergraduates, July 1994.  
Transfer Student Initiative Committee - 1992-1995  
Minority Student Orientation 1993  
New Student Orientation 1993  
Campus Committee to review instructors/Lecturers 1992-1993  
Participant on Panel for Revitalizing Education through Revaluing Teaching at  
College Park, March 1993  
Engineering College retreat on curriculum revision 1993  
College Teaching Committee 1993  
Subcommittee on Course and Program Evaluation 1989-1991 (Pease Implementation)  
General Education Committee 1988-1991 (Pease Implementation)  
Campus Committee on Future Academic Computing 1989  
Search Committee for Assistant Director of Computer Science Center for Networking  
1989  
Search Committee for Dean of Undergraduate Education 1987-1988  
Search Committee for Assistant Dean of CMPS 1987  
Departmental Review Committee 1982-1983  
Instructional Computing Fair UMCP 1987  
Lecturer in Honors 358 "Celebration of Learning" 1983  
Member of MUPPET project 1984-87  
Member of FULCRUM project 1984-87  
Middle States Evaluation Curriculum Committee 1985-1986  
Physics Department Chairman Selection Committee 1985  
Presentation of Councilors for Gifted and Talented Students 1986  
Presentation to Gifted and Talented Minority Students 1986  
Presentation to American-Soviet Exchange Students, AAPT, Univ. of MD., 1989  
Represented UMCP Faculty before the Board of Regents 1987  
Research Presentation of AAPT Workshops 1985, 1986, 1987, 1988  
Organizing Committee - Maryland at Risk Day - 1991  
Workshop for Maryland at Risk Day - 1991  
Workshop for Transfer Students - 1992  
CMPS Junior Science and Humanities Symposium - 1992  
Member of Panel discussion regarding Ways to Enhance Undergraduate Education at  
UMCP - 3/92  
Faculty Representative at President's Brunch during Family Week End - 1992

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**VIII. Miscellaneous Service**

**A. Physics Service (Non-campus)**

Chair, University of Utah Physics Department Review Committee 2006  
HEPAP Sub-panel on University Programs 2006 - Present  
Evaluator for the Intel (& formerly Westinghouse) Science Talent Search 1983-present  
Head of Organizing committee for NeSS2002 meeting for the NSF 2002  
SAGENAP member (NSF) 1998-2000, 2002-2003  
Quarknet – summer program for high school teachers 2003- present  
External Advisor Board for the HIRES experiment 2002-present  
IceCube review panel 2001  
NSF Panel on Underground Science 2001  
National Organizing Committee for 1999 International Cosmic Ray Conference 1997 - 1999  
Principal Investigator of Travel Grant for International Cosmic Ray Conference 1995 -1999  
Member, Scientific & Educational Council, Maryland Academy of Sciences, 6/92-present  
NSF Review Panel on the Borexino Experiment 1997  
State Task Force on Teachers Education 1993  
Reviewed many proposals for NSF and DoE  
National Research Council, Particles Panel of Astronomy and Astrophysics, 1989-1990  
National Science Foundation--Science and Technology Center Review, 1988  
National Science Foundation Science and Technology Center Site Visit Team, Princeton University, Univ. of Penn., 1988  
National Science Foundation Review Committee for Calculus Reform Proposals, 1990  
Scientific Advising Committee for Little Rock Workshop on Physics and Experimental Techniques of High Energy and VHE and UHE Gamma Ray Particle Astrophysics, Univ. of Arkansas, Little Rock, Arkansas, May 1989  
Scientific Advising Committee for Michigan Workshop on UHE and VHE  $\gamma$ -ray Astronomy, October 1990  
Organizing Committee for Utah Cascade Simulation Workshop, University of Utah, Salt Lake City, Utah, March 1989  
Member Science, Math and Computer Science Magnet Program Oversight Committee of the Montgomery Board of Education 1983-1986  
Organizing Committee for October 1992 Astrophysics Meeting - Goddard/UMD - 1992  
Advisor to Montgomery County Physics Teachers Association --Presented a Workshop on using demonstrations in teaching of basic physics - 1982

**B. Community Service**

Presentation at Clarksburg, High School, January 2008, Dec. 2006  
Presentation at Blake, High School, February 2008, May 2007  
Keynote Speaker, VIP K-16 workshop, UM Shady Grove, November 2005  
Presentations to Physics classes at Bronx High School of Science – 2001, 2003

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Presentations to Physics classes at Stuyvesant High School (NYC)– 2001, 2002, 2003, 2005  
Presentations at Quince Orchard High School, 2004, 2005, 2006  
Presentation to AP Physics Classes at Richard Montgomery High School, 2003  
Presentation to AP Physics Classes at Churchill High School, 2003  
Presentation to AP Physics Classes at Rockville High School on Cosmology May 2000  
“Teachers as Scholars” Course for High School Teachers, November 2003  
Keynote speaker Science Breakfast, Hyattsville Middle School, March 1997  
Judge Montgomery County Science Fair, 1985-present  
Presentations on "How to do a Successful Westinghouse Project" - Col. Zadok Magruder High School, Montgomery Blair High School, Walt Whitman High School, Thomas Jefferson High School 1996 - 1998  
Grand Judge, Montgomery Blair Science Fair 1990, 1991, 1992  
Lectures on Photography and Optics for High School Students in Montgomery and Prince George's County Public Schools, 1986-1988  
Lecture on Ultra High Energy Gamma Ray Astronomy to Montgomery County Magnet students at Montgomery-Blair High School, March 1989  
Presentation on "Coping with College Life" to UMCP residence halls, 1988, 1989, 1990  
Montgomery County Public Schools Science Convocation, 1986  
Research tutorial to American Association of Physics Teachers, 1984  
Research Presentation to U.S. Physics Olympics Team, 1987-present  
TGIP presentation at JFK High School "Quarks, Leptons and the Structure of Matter, 1985  
Light and Optics for Gifted and Talented Montgomery County Public Schools, 1986  
Flower Valley PTA Executive Committee 1989-present  
Presentation on "Electromagnetism," at Magruder High School, 1991  
Presentation on "Optics," at Brook Grove Elementary School, 1991  
Presentation on "Electromagnetism," at Flower Valley School, 1991  
Presentation on "Sound" at Flower Elementary School, 1992  
Presentation to Howard County Public School Physics Teachers on "Inexpensive Demonstrations," 1993  
Presentation on "Russia" to Wood Middle School, 1993  
Presentation on "Electricity and Magnetism" at Wood Middle School, 1993  
Presentation on "Newton's Laws" at Laytonsville Elementary School, 1993  
Presentation on "Newton's Laws" at Laytonsville Elementary School, May 1994  
High School dissemination Conference on Successful Magnet and Special Program Practices, March 1994  
Testified Montgomery County Council on Global Access for Schools 1994  
Presentation at Fields Road Elementary School on "Light and Color" 1994  
Presentation at Blair High School "How to make a successful Westinghouse project" 1994  
Keynote speaker, "Science Night", Stedwick elementary, October 1994  
Keynote speaker at "Science Awards Breakfast", Hyattsville Middle School 1994

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Speaker for US Physics Olympic team 1994, 1995  
Science Fair Judge, Piney Branch Elementary School, April 1995  
Presentation at Germantown Elementary School, October 1995  
Participant in Career Day, Hoover Middle School, December 6, 1995  
Grand Judge, Silver Spring Community Science Fair 1996, (Blair, Einstein, Kennedy, Springbrook High Schools) March 20, 1996  
Presentation Walt Whitman High School, What Judges Look for at Westinghouse Competition, October 15, 1996  
Presentation Thomas Jefferson High School about Westinghouse Competition, April 96  
Presentation Rockville High School, Photography and Optics, 1996

### IX. Current/Recent Research Grants:

PI Particle Astrophysics with Milagro National Science Foundation 06/01/2006 - 06/30/2008 Total Funding: \$830,000

Co-PI Particle Astrophysics with the South Pole IceCube Neutrino Observatory, Nation Science Foundation, 09/15/2005 08/31/2007, Total Funding: \$750,000

PI Particle Astrophysics with Milagro National Science Foundation 05/01/2003 - 06/30/2006 Total Funding: \$1,350,000

PI Operation of the Milagro Gamma Ray Observatory National Science Foundation 06/01/2004 - 05/31/2006'-- Total Funding: \$1,984,339

PI Consulting services for preparation of proposal., - South Dakota Science and Technology Authority 07/01/2004 - 06/30/2005'-- Total Funding: \$4,000

PI GANN: Physics Education 08/15/2001 - 08/14/2005'-- Total Funding: \$819,000

P.I - Milagro Infrastructure and Collaboration Support at Los Alamos - Start - 06/15/01 - \$785k total over 3 years

P.I. - Milagro - A Water-Cherenkov Detector for TeV Gamma Ray Astrophysics — Start - 02/01 - \$1.7M total for 3 years.

### X. Research Publications:

#### A. Journals

“TeV Gamma-Ray Sources from a Survey of the Galactic Plane with Milagro”  
By Milagro Collaboration” (A. Abdo et. al.) Ap. J. Letters August 2007 664, L91



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“Discovery of Localized Regions of Excess 10-TeV Cosmic Rays”  
By Milagro Collaboration (A. Abdo et. al.) Submitted to Phys Rev Lett

Search for neutrino-induced cascades from gamma-ray bursts with AMANDA.  
By IceCube Collaboration (A. Achterberg et al.). Mar 2007. 38pp.  
Astrophys.J.

“Five years of searches for point sources of astrophysical neutrinos with the AMANDA-II neutrino telescope.” By IceCube Collaboration (A. Achterberg et al.). Nov 2006. 32pp. Published in Phys.Rev.D75:102001,2007.

“Discovery of TeV Gamma-Ray Emission from the Cygnus Region of the Galaxy”  
By Milagro Collaboration” (A. Abdo et. al.) Ap. J. Letters March 658, L33, 2007e-  
Print Archive: ASTRO-PH 0611691

Observation Of The Anisotropy Of 10-Tev Primary Cosmic Ray Nuclei Flux With  
The Super-Kamiokande-I Detector. By Super-Kamiokande Collaboration (G.  
Guillian et al.). Phys. Rev. D, vol. 74 no. 6 (2007), pp. 062003

Milagro Constraints on Very High Energy Emission from Short Duration Gamma-  
Ray Bursts by the Milagro Collaboration (A. Abdo et. al) Astrophysical Journal  
666(2007), pages 361 - 367

Limits on the High-Energy Gamma and Neutrino Fluxes from the SGR 1806-20  
Giant Flare of 27 December 2004 with the AMANDA-II Detector  
A. Achterberg et al. (IceCube Collaboration) Phys. Rev. Lett. 97, 221101 (2006)

Solar Neutrino Measurements In Super- Kamiokande-I. J. Hosaka et al.,  
Phys.Rev.D73:112001,2006

Limits On The Muon Flux From Neutralino Annihilations At The Center Of The  
Earth With Amanda. A. Achterberg et al., Astropart.Phys.26:129-139,2006.

Solar Neutrino Measurements In Super-Kamiokande-I.  
By Super-Kamkiokande Collaboration (J. Hosaka et al.). 32pp.  
Phys. Rev. D 73, 112001 (2006) e-Print Archive: hep-ex/0508053

Observation Of The Anisotropy Of 10-Tev Primary Cosmic Ray Nuclei Flux With  
The Super-Kamiokande-I Detector. By Super-Kamiokande Collaboration (G.  
Guillian et al.). Aug 2005. 15pp. Submitted to Phys.Rev.D  
e-Print Archive: astro-ph/0508468

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"Three Flavor Neutrino Oscillation Analysis Of Atmospheric Neutrinos In Super-Kamiokande." J. Hosaka et al., Phys.Rev.D74:032002,2006.

"Recent results from the Milagro gamma ray observatory", Goodman, JA ,  
NUCLEAR PHYSICS B-PROCEEDINGS SUPPLEMENTS, 151: 101-107 JAN  
2006

"Evidence for TeV gamma-ray emission from a region of the galactic plane",  
Atkins, R; Benbow, W; Berley, D; et al., PHYSICAL REVIEW LETTERS, 95 (25):  
Art. No. 251103 DEC 16 2005

"Constraints on very high energy gamma-ray emission from gamma-ray bursts"  
Atkins, R; Benbow, W; Berley, D; et al., ASTROPHYSICAL JOURNAL, 630 (2):  
996-1002 Part 1 SEP 10 2005

"Search for dark matter WIMPs using upward through-going muons in Super-Kamiokande" Desai, S; Ashie, Y; Fukuda, S; et al., (vol D 70, art no 083523,  
2004) PHYSICAL REVIEW D, 70 (10): Art. No. 109901 NOV 2004

"Search for very high energy gamma rays from WIMP annihilations near the Sun  
with the Milagro detector" Atkins, R; Benbow, W; Berley, D; et al., PHYSICAL  
REVIEW D, 70 (8): Art. No. 083516 OCT 2004

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“Search for dark matter WIMPs using upward through-going muons in Super-Kamiokande” Desai, S; Ashie, Y; Fukuda, S; et al., PHYSICAL REVIEW D, 70 (8): Art. No. 083523 OCT 2004

“Evidence for an oscillatory signature in atmospheric neutrino oscillations”, Ashie, Y; Hosaka, J; Ishihara, K; et al., PHYSICAL REVIEW LETTERS, 93 (10): Art. No. 101801 SEP 3 2004

“Limits on the neutrino magnetic moment using 1496 days of Super-Kamiokande-I solar neutrino data”, Liu, DW; Ashie, Y; Fukuda, S; et al., PHYSICAL REVIEW LETTERS, 93 (2): Art. No. 021802 JUL 9 2004

“TeV gamma-ray survey of the northern hemisphere sky using the Milagro observatory” Atkins, R; Benbow, W; Berley, D; et al., ASTROPHYSICAL JOURNAL, 608 (2): 680-685 Part 1 JUN 20 2004

“Status of the IceCube Neutrino Observatory”, Ahrens, J; Bahcall, JN; Bai, X; et al., NEW ASTRONOMY REVIEWS, 48 (5-6): 519-525 APR 2004

Limits on Very High Energy Emission from Gamma-Ray Bursts with the Milagro Observatory R. Atkins et al. Astrophysical Journal Letters 604 (2004), L25

Observation of TeV Gamma Rays from the Crab Nebula with Milagro Using a New Background Rejection Technique R. Atkins et al. Astrophysical Journal 595 (2003) 803-811

Observation of GeV Solar Energetic Particles from the 1997 November 6 Event Using Milagrito A. Falcone et al. Astrophysical Journal 588 (2003) 557-565

The High-Energy Gamma-Ray Fluence and Energy Spectrum of GRB 970417a from Observations with Milagrito R. Atkins et al. Astrophysical Journal 583 (2003) 824-832

“Limit on the neutrino magnetic moment using 1496 days of Super-Kamiokande-I solar neutrino data” D. W. Liu et al. [Super-Kamiokande Collaboration] arXiv:hep-ex/0402015

“Limits on very high energy emission from gamma-ray bursts with the Milagro Observatory” R. Atkins et al. [Milagro Collaboration] arXiv:astro-ph/0311389

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“Precise measurement of the solar neutrino day/night and seasonal variation in Super-Kamiokande-I” M. B. Smy et al. [Super-Kamiokande Collaboration] Phys. Rev. D 69, 011104 (2004) [arXiv:hep-ex/0309011]

“A search for periodic modulations of the solar neutrino flux in Super-Kamiokande-I” J. Yoo et al. [Super-Kamiokande Collaboration] Phys. Rev. D 68, 092002 (2003) [arXiv:hep-ex/0307070]

“Observation Of GeV Solar Energetic Particles From The 1997 November 6 Event Using Milagrito” A. Falcone et al. Astrophys. J. 588, 557 (2003)

“Observation of TeV gamma rays from the Crab nebula with Milagro using a new background rejection technique” R. Atkins et al. [Milagro Collaboration] Astrophys. J. 595, 803 (2003) [arXiv:astro-ph/0305308]

“The Super-Kamiokande detector” Y. Fukuda et al. Nucl. Instrum. Meth. A 501, 418 (2003) Prepared for 8th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT 2002), Moscow, Russia, 24-28 Jun 2002

“Search for anti- $\nu_e$  from the sun at Super-Kamiokande-I” Y. Gando et al. [Super-Kamiokande Collaboration] Phys. Rev. Lett. 90, 171302 (2003) [arXiv:hep-ex/0212067]

“IceCube: The next generation neutrino telescope at the South Pole” J. Ahrens et al. [The IceCube Collaboration] Nucl. Phys. Proc. Suppl. 118, 388 (2003) [arXiv:astro-ph/0209556] To appear in the proceedings of 20th International Conference on Neutrino Physics and Astrophysics (Neutrino 2002), Munich, Germany, 25- 30 May 2002

“Search for supernova relic neutrinos at Super-Kamiokande” M. Malek et al. [Super-Kamiokande Collaboration] Phys. Rev. Lett. 90, 061101 (2003) arXiv:hep-ex/0209028]

“The high-energy gamma-ray fluence and energy spectrum of GRB 970417a from observations with Milagrito” R. Atkins et al. Astrophys. J. 583, 824 (2003) [arXiv:astro-ph/0207149]

“Determination of solar neutrino oscillation parameters using 1496 days of Super-Kamiokande- I data” S. Fukuda et al. [Super-Kamiokande Collaboration] Phys. Lett. B 539, 179 (2002) [arXiv:hep-ex/0205075]

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“Search for neutrinos from gamma-ray bursts using Super-Kamiokande” S. Fukuda et al. [the Super-Kamiokande Collaboration] *Astrophys. J.* 578, 317 (2002) [arXiv:astro-ph/0205304]

“Status of the Milagro gamma ray observatory” R. Atkins et al. [Milagro Collaboration] arXiv:astro-ph/0110513 Contributed to 27th International Cosmic Ray Conference (ICRC 2001), Hamburg, Germany, 7-15 Aug 2001

“The MILAGRO gamma-ray observatory” J. E. McEnery et al. [Milagro Collaboration] *AIP Conf. Proc.* 558, 549 (2001) Prepared for International Symposium on High-Energy Gamma-Ray Astronomy, Heidelberg, Germany, 26-30 Jun 2000

“Constraints on neutrino oscillations using 1258 days of Super-Kamiokande solar neutrino data” S. Fukuda et al. [Super-Kamiokande Collaboration] *Phys. Rev. Lett.* 86, 5656 (2001) [arXiv:hep-ex/0103033]

“Solar B-8 and he p neutrino measurements from 1258 days of Super-amiokande data” S. Fukuda et al. [Super-Kamiokande Collaboration] *Phys. Rev. Lett.* 86, 5651 (2001) [arXiv:hep-ex/0103032]

### TAU NEUTRINOS FAVORED OVER STERILE NEUTRINOS IN ATMOSPHERIC MUON-NEUTRINO OSCILLATIONS.

By Super-Kamiokande Collaboration (S. Fukuda *et al.*). Sep 2000. 9pp.

Published in **Phys.Rev.Lett.85:3999-4003,2000** e-Print Archive: **hep-ex/0009001**

### THE MILAGRO GAMMA RAY OBSERVATORY.

By Milagro Collaboration (J.E. McEnery *et al.*). Jun 2000.

Prepared for International Symposium on High-Energy Gamma-Ray Astronomy, Heidelberg, Germany, 26-30 Jun 2000. Published in \*Heidelberg 2000, High energy gamma-ray astronomy\* 549-552

### N-16 AS A CALIBRATION SOURCE FOR SUPERKAMIOKANDE.

By SuperKamiokande Collaboration (E. Blaufuss *et al.*). LSU-HEPA-1-00, May 2000. 20pp. Published in **Nucl.Instrum.Meth.A458:638-649,2001**

e-Print Archive: **hep-ex/0005014**

Evidence For Tev Emission From GRB 970417a. By Milagro Collaboration (R. Atkins et al.). *The Astrophysical Journal*, 533:L119-L122, 2000 April 20

Measurement of the Solar Neutrino Energy Spectrum Using Neutrino-Electron Scattering, The Super-Kamiokande Collaboration, *Phys. Rev. Lett.* 82 (1999)

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Measurements of the Solar Neutrino Flux from Super-Kamiokande's First 300 Days, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 81 (1998) 1158-1162

Constraints on neutrino oscillation parameters from the measurement of day-night solar neutrino fluxes at Super-Kamiokande, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 82 (1999) 1810-1814

Tev Observations Of Markarian 501 With The Milagro Water Cherenkov Detector. By Milagro Collaboration (R. Atkins et al.) Ap. J. Lett 525:L25-L28, 1999 Nov. 1

Evidence for oscillation of atmospheric neutrinos, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 81 (1998) 1562-1567

Neutrino-induced upward stopping muons in Super-Kamiokande, The Super-Kamiokande Collaboration, Phys. Lett. B467(1999) 185

Search for proton decay through  $p \rightarrow \nu + \kappa^+$  in a large water Cherenkov Detector, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 83(1999) 1529

Observation of the East-West Anisotropy of the Atmospheric Neutrino Flux, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 82(1999) 5194

Measurement of radon concentrations at Super-Kamiokande, The Super-Kamiokande Collaboration, Phys. Lett. 452(1999) 418-422

Measurement of the flux and zenith-angle distribution of upward through-going muons by Super-Kamiokande, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 82 (1999) 2644

Calibration of Super-Kamiokande using an electron LINAC, The Super-Kamiokande Collaboration, Nucl. Instr. Meth. A421 (1999) 113-129

Search for Proton Decay via  $p \rightarrow e^+ \pi^0$  in a Large Water Cherenkov Detector, The Super-Kamiokande Collaboration, Phys. Rev. Lett. 81 (1998) 3319

Study of the atmospheric neutrino flux in the multi-GeV energy range, The Super-Kamiokande Collaboration, Phys. Lett. B436 (1998) 33-41

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Measurement of a small atmospheric  $\nu_{\mu} / \nu_e$  ratio, The Super-Kamiokande Collaboration, Phys. Lett. B433 (1998) 9-18 Fukuda, Y., et al., Super-Kamiokande Collaboration, "Evidence for oscillation of atmospheric neutrinos" , Phys. Rev. Lett. 81 (1998) 1562-1567.

Fukuda, Y, et al., The Super-Kamiokande Collaboration, "Measurement of the solar Neutrino Flux from Super-Kamiokande's First 300 Days", Phys. Rev. Lett. 81 (1998) 1158-1162.

Fukuda, Y. et al., The Super-Kamiokande Collaboration, " Measurement of a Small Atmospheric  $\nu_{\mu}/\nu_e$  Ratio." Phys. Lett. B433 (1998) 9-18.

Fukuda, Y. et al., The Super-Kamiokande Collaboration, "Study of the atmospheric neutrino flux in the multi-GeV energy range." Submitted to *Phys. Lett. B*, 1998.

Allen, G. E. with J. A. Goodman, et al., "A Search for Ultra-High-Energy Gamma-Ray Emission From Five Supernova Remnants," *Astrophysical Journal Letters*, 448, L25 (1995)

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Mincer, A.I. with J. A. Goodman et al., "A Study of Fluctuations in Signals from Scintillator Detectors in an Iron Calorimeter for Low Energy hadrons," T2-19

(Other contributed papers in 1982 and 1983)

Goodman, J.A., "Design and cost considerations for a surface array at Dugway," Proc. of Cosmic Ray Workshop, Utah 1983, Ed. by T.K. Gaisser, Bartol Research Foundation, p. 126

Goodman, J.A. et al., "Composition of Primary Cosmic Rays at  $10^{15} - 10^{16}\text{eV}$ ," in Proc. of Workshop on Very High Energy Interactions, Univ. of Pennsylvania (1982)

Yodh, G.B. with J. A. Goodman et al., "High Energy Muon Experiments and the Composition of Primary Cosmic Rays, *ibid.*

Proceedings of the 17th International Conference on Cosmic Rays, Paris, France, 1981

Cowsik, R. with J. A. Goodman et al., "Evidence for the Dominance of Heavy Nuclei in Cosmic Rays at  $10^6\text{GeV}$ ," OG 2-24

Goodman, J.A. et al., "Search for Long-lived Massive Particles in Cosmic Ray Air Showers," HE 2-5

Goodman, J.A. et al., "Report on Flight of Goddard-University of Maryland Proton-Helium Spectrometer," T2-10

Goodman, J.A. et al., "Study of Time Structure of Energetic Hadrons Near Air Shower Cores," OG 2.2-5

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Proceedings of the 20th International Conference on High Energy Physics, Madison, Wisconsin, 1980

Ellsworth, R.W. with J. A. Goodman et al., "Simulation of Centauros"

Proceedings of the 16th International Conference on Cosmic Rays, Kyoto, Japan, 1979

Goodman, J.A. et al., "Observation of Delayed hadrons in Air Showers - New Massive Particles?" HE 205

Goodman, J.A. et al., "Composition of Primary Cosmic Rays Above 10<sup>13</sup>eV from the Study of Time Distribution of Energetic Hadrons near Air Shower Cores - Data and Results," EA 1-7

Goodman, J.A. et al., "The Study of Delayed Energetic Hadrons near Air Shower Cores," Paper presented at the Durham meeting of the Cosmic Ray Physics Division of the American Physical Society, September 1978

Proceedings Newark Cosmic Rays and Particle Physics (1978)

Goodman, J. A. et al., "Observation of Energetic Delayed Hadrons in Extensive Air Showers - New Massive Particles", 207-220.

Proceedings Muenchen Fourteenth International Cosmic Ray Conference (1975)

Ellsworth, R. W. with J. A. Goodman et al., "Measurement of the Flux of charged Hadrons at 2900-M," 2528-2531.

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### XIII. Invited Talks and Colloquia

Invited Lecturer 15<sup>th</sup> Course: "Astrophysics at Ultra-high Energies" Ettore Majorana Centre, Erice, Sicily, Italy, June 2006

Invited Talk "MiniHAWC – A New Detector for Gamma-Ray Astronomy", Workshop on Future PRC-U.S. Cooperation in High Energy Physics, Beijing, China, June 11 - 18, 2006

Invited Lecturer, "Neutrino Astrophysics with IceCube", MEPHI-Volga Summer School, May 2006, Moscow, Russia

Public Lecture "150 Years of Physics" – Maryland Day, University of Maryland, College Park, MD, April 2006

Colloquium – "Neutrino Astronomy" – University of Massachusetts, Amherst, MA, March 2006

Colloquium – "MiniHAWC – A New Detector for Gamma-Ray Astronomy", UNAM, Mexico City, January 2006

Colloquium - "MiniHAWC – A New Detector for Gamma-Ray Astronomy", Instituto Nacional de Astrofisica, Optica y Electronica, Puebla, Mexico, January 2006

Colloquium - "MiniHAWC – A New Detector for Gamma-Ray Astronomy", Benemérita Universidad Autónoma de Puebla, Puebla, Mexico, January 2006

Invited Talk "Recent Results from MILAGRO" 29<sup>th</sup> International Cosmic Ray Conference, Pune, India, August 2005

Colloquium "Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe", UMBC May 2005

Colloquium Bartol Institute "Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe", University of Delaware - April 20, 2005

Invited Talk – "Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe" Smithsonian Institution - Jan 2005

Invited Talk "Neutrino Astronomy" - Recontre de Moriond - La Theile, Itay March 8, 2005

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Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, Gettysburg College, Gettysburg, PA, October 2004

Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, Bryn Mawr College, Bryn Mawr, PA, September 2004

Invited Talk – “Recent Results from Milagro” XIII International Symposium on Very High Energy Cosmic Ray Interactions, Pylos, Greece, September 6-13, 2004

Invited Lecturer 14<sup>th</sup> Course: "Astrophysics at Ultra-high Energies" Ettore Majorana Centre, Erice, Sicily, Italy, June 2004

Invited Talk “VHE GRBs with Milagro” - Rencontre de Moriond – Les Arcs, France March 2003

Invited Talk “Who Needs Yesterday’s Papers When Today’s Are on the Internet? Preservation from the Physicists Perspective” – University of Maryland Libraries Symposium”, University of Maryland, College Park, MD, January 2003

Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, National Institutes of Standards and Technology, Gaithersburg, MD, January 2003

Invited Lecturer 13<sup>th</sup> Course: "Astrophysics at Ultra-high Energies" Ettore Majorana Centre, Erice, Sicily, Italy, June 2002

Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, University of California, Riverside, CA, April 2002

Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, Columbia University, New York, April 2002

Colloquium “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, Lafayette College, Easton PA, February 2002

Invited Talk “Recent Results from Super-K (and K2K)”, Aspen Winter Physics Conference, Aspen, CO January 2002

Richtmyer Award Lecture, “Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe”, American Association of Physics Teachers, Philadelphia, PA, January 2002



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Colloquium "Neutrinos, Dark Matter and the Cosmological Constant - The Dark Side of the Universe", Catholic University of America, Washington, DC, November 2001

Distinguished Scholar-Teacher Lecture, "Ghosts in the Universe," UM Physics Department, March 2000

Maryland Day talk - "Up close and personal with a great idea," University of Maryland, April 2000

Invited Super-K talk, Moriond Conference, Les Arc , France, March 2000

Colloquium Super-k Atmospheric and Solar Neutrino Results, Saclay, France, March 2000

Colloquium at NYU, Recent Super-K Results, May 1999

Colloquium at Temple University, Philadelphia, November 1998

Invited talk at the 6th International Conference on Advanced Technology and Particle Physics , Como, Italy, October 1998

Colloquium at University of Pisa, Italy, October 1998

Colloquium - University of Houston, April 1998

Colloquium at Oxford University, England, May 1998

Colloquium at University of Leeds, England, May 1998

Colloquium at Institute for Cosmic Ray Research, Japan, January 1998

Colloquium - University of West Virginia, Dec. 1997

Colloquium - Thomas Johnson Laboratory, April 1997

Colloquium - Department of Physics, University of Wisconsin, October 1994

Colloquium - Department of Physics, Univ. of Arkansas, April 1994

Colloquium - College of Science, University of Central Arkansas, April 1994

Invited Talk "Astrophysics with Milagro", Division of Particles and Fields,

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Albuquerque, NM, August 1994

"Data on Particle Physics," CHIPS talk, November 1992

"The Use of Water Detectors for Detecting Air Showers," Workshop in the Measurement of the Highest Energy Air Showers, Paris, April 1992

"UHE Gamma Ray Astrophysics. Where have all the Sources Gone?," Colloquium, Univ. of Utah, Salt Lake City, January 1992

"Observational Priorities for Ground Based Experiments," International Conference on Particle Acceleration in Astrophysics, Bartol Inst. of Research, Univ. of Delaware, December 1991

"MILAGRO - A Water Cherenkov Detector for 1 TeV to 1 PeV Cosmic Rays" presented at International Conference on High Energy Gamma-Ray Astronomy, Ann Arbor, Michigan, October, 1990

"Recent Results in UHE  $\gamma$ -Ray Astronomy: Results from the CYGNUS Experiment," presented at 1990 Snowmass Summer Study - Research Directions for the Decade, July 1990

"UHE Gamma Ray Astronomy-Recent Results from CYGNUS Experiment," Washington, DC APS Meetings, April 1990

"Experimental Searches for Astrophysical Point Sources Above 1 TeV," Goddard Conference on Cosmic Ray Program for the 1990's, November, 1989

"Strange Emissions from Her X-1," Colloquium, National Capital Astronomers, Smithsonian Institution, October, 1989

"Current Status of UHE Gamma Ray Astronomy," University of Arkansas, Little Rock, Workshop on the Physics and Experimental Techniques of High Energy Neutrinos and the VHE and UHE Gamma Ray Particle Astrophysics, May, 1989

"MUPPET Project," American Physical Society Meeting, Miami University, Oxford, Ohio, April, 1989

"A New Experiment to Measure Neutral Rapidity," Utah Cascade Simulation Workshop, University of Utah, Salt Lake City, Utah, March 1989

"Hercules X-1 New Physics above 100 TeV," Johns Hopkins Applied Physics Laboratory, Colloquium, January, 1989

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"Hercules X-1 New Physics above 100 TeV?," Univ. of Maryland Physics Colloquium, December, 1988

"Hercules X-1," Univ. of Minnesota Colloquium, October 1988

"On Line Data Analysis--Smart PC Workstations," PC Workstation talk, Raleigh, NC, Conference on Computers in Physics Instruction, August 1988

"Report on UHE Gamma Ray Astrophysics," Snowmass, Colorado, Workshop on HEP in the 1990's, July, 1988

"CYGNUS Experiment at Los Alamos," Report on HEPAP subcommittee on Gamma Ray Astrophysics, Baltimore, MD, April 1988

"Results from the CYGNUS Experiment at Los Alamos," Euro Physics Meeting, Uppsala, Sweden, June 1987

"Results above 100 TeV from the CYGNUS Experiment at Los Alamos," Ultra High Energy Gamma Ray Workshop, Salt Lake City, Utah, January 1987

"CYGNUS Experiment at Los Alamos," International Conference on Intersection between Particle and Nuclear Physics, Lake Louise, Canada, May 1986

"New Developments in Track Finding," LSU Conference on Cosmic Rays on the Space Platform, October 1984

"Cosmic Rays," Physics Colloquium, Pennsylvania State University, 1984

"Composition of Cosmic Rays at  $10^{15}$ eV", Physics Colloquium, University of Maryland, 1984

"Electronic Design for a Surface Array at Dugway," Utah Air Shower Workshop, Salt Lake City, January 1983

"Composition of Cosmic Rays at 1013 - 1015eV," Invited lecture at Workshop on Very High Energy Interactions, Univ. of Pennsylvania, Ken Lande, Chairman (1982)

"Research in Cosmic Ray Physics," Physics Colloquium, University of Maryland, Baltimore County, September 1979

"Observation of Energetic Delayed Hadrons - New Massive Particles?," Gordon Conference on Elementary Particle Interactions, Andover, NH, August 1979, Henry Frish, Chairman

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### Seminars:

Seminar at McGill University, Montreal, Canada, January 1999

Seminar - Space Physics Group University of Maryland, Oct. 1997

Presentation to Dr. Jacobson's class, Sept. 1997

Department Graduate Seminar on Particle Astrophysics, September 1996, 1998

Super-Kamiokande, U.S. Physics Olympics Team, May 1996

High Energy Physics Seminar, University of Maryland, October 1995

"CYGNUS - The Other Air Shower," Seminar, Univ. of Chicago, October 1991

"Review of UHE and VHE Gamma Ray Astronomy, High Energy Physics Seminar, U. of MD Physics Dept., January 1991

"MILAGRO - A New for TeV Gamma Ray Astronomy, High Energy Physics Seminar, U. of MD. Physics Dept., November 1990

"Status of Anomalous Muon Observations from Astro Physics Objects," Joint Institute of Theoretical Physic/Brookhaven National Laboratory Seminar, SUNY, October, 1990

"UHE gamma Ray Astronomy-Recent Results from CYGNUS Experiment," Seminar at Boston University Physics Department, May 1990

Recent results in UHE Gamma Ray Astronomy - Pennsylvania State University, University Park, Physics and Astronomy Seminar, January 1990

"UHE Gamma Ray Astronomy--Past, Present and Future," Bartol Research Institute, U. of Delaware Astrophysics Seminar, September 1989

"Anomalous Muon Content of UHE Air Showers from Hercules X-1," Cornell University, May 1989

"Hercules X-1 New Physics above 100 TeV?" University of Michigan, Ann Arbor, High Energy Physics Seminar, January 1989

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"Anomalous Muon Content of Ultra High Energy Air Showers from HER X-1," Rutgers University, November 1988

"Muons from Hercules X-1," Brookhaven National Laboratory, July 1988

"New Results on Hercules X-1 and Cygnus X-3," Goddard Space Center Astrophysics Seminar, GSFC, Greenbelt, January 1988

"Hercules X-1 Results from the CYGNUS Experiment," High Energy Physics Seminar, Cal Tech., Pasadena, CA, March 1987

High Energy Physics Seminar, Fermilab, Batavia, IL, April 1987

"Results from the CYGNUS Experiment at Los Alamos," Goddard Space Center Astrophysics Seminar, GSFC, Greenbelt, September 1986

Nuclear Physics Seminar, University of Maryland, September 1985

"Composition at the Knee," Goddard Space Flight Center and University of Maryland Seminar, 1984

"Report on Leipzig International High Energy Physics Conference," High Energy Seminar 1984

High Energy Cosmic Ray Seminar, University of Utah, February 1984

"Results from the Maryland Cosmic Ray Experiments," University of Maryland HE Seminar, September 1983

"High Energy Cosmic Ray Air Showers," High Energy Physics Seminar, Bartol Institute, University of Delaware, 1982

"Unusual Events in Cosmic Ray Interactions," High Energy Seminar, Johns Hopkins University, Baltimore, MD, February 1982

"Search for Exotic Phenomena in Cosmic Rays," High Energy Seminar, University of Maryland, 1980