

Biographical Data of JONATHAN ARONS

BORN:

16 August 1943; Philadelphia, PA, USA

ADDRESS:

Office: Department of Astronomy, 601 Campbell Hall, University of California,
Berkeley, CA 94720-3411

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EDUCATION:

Ph.D. (Astronomy), Harvard University, Cambridge, MA 1970

A.M. (Astronomy), Harvard University, Cambridge, MA 1969

B.A. (Physics), Williams College, Williamstown, MA 1965

GRADUATE FELLOWSHIPS:

Danforth Foundation Graduate Fellow 1965-1970

Woodrow Wilson Foundation Fellow 1965-1966

POSITIONS:

Professor of Astronomy and of Physics, University of California, Berkeley, 1982-
present

Associate Professor of Astronomy and of Physics, University of California,
Berkeley, 1980-1982

Associate Professor of Astronomy, University of California, Berkeley, 1976-1980

Assistant Professor of Astronomy, University of California, Berkeley, 1972-1976

Member, Institute for Advanced Study, Princeton, NJ 1971-1972

Research Associate in Astrophysical Sciences, Princeton University, Princeton, NJ
1970-1971

VISITING POSITIONS:

Research Astronomer, Institute of Astronomy, Cambridge University, Cambridge,
ENGLAND April-August 1974

Research Astronomer, Institute of Astronomy, Cambridge University, Cambridge,
ENGLAND July-August 1976

Visiting Research Astrophysicist, Centre d'Etudes Nucleaires (SACLAY),
FRANCE April-September 1980
Research Physicist, Institute for Theoretical Physics, University of California,
Santa Barbara, CA April-June 1982
Research Physicist, Lawrence Livermore National Laboratory, Livermore, CA
April-June 1983
Visiting Research Astrophysicist, Centre d'Etudes Nucleaires (SACLAY),
FRANCE September-December 1989
Research Physicist, Institute for Theoretical Physics, University of California,
Santa Barbara, CA, September-December 1995
Research Physicist, Institute for Theoretical Physics, University of California,
Santa Barbara, CA, August-December 2000

FELLOWSHIPS

Adolph C. and Mary Sprague Miller Research Professor, University of California at Berkeley
1985-1986
John Simon Guggenheim Memorial Foundation Fellow 1980-1981
University of California Regents' Summer Faculty Fellow 1973

HONORS AND OFFICES HELD

Director, Theoretical Astrophysics Center, University of California, Berkeley, 1999-present
Chairman, Program Committee, Topical Group on Plasma Astrophysics of the American Physical
Society 1998--99
Member, Program Committee, Division of Plasma Physics of the American Physical Society 1999
Chairman, Department of Astronomy, University of California, Berkeley 1993-present
Member, NAS Committee on Plasma Science of Commission on Physical Sciences, Mathematics
and Applications, 1990-1993
Acting Chairman, Department of Astronomy University of California, Berkeley 1990-1991
Member, Advisory Board, Institute for Theoretical Physics, University of California at Santa
Barbara, 1988-1991
Fellow, American Physical Society 1985 - present
Member, Program Committee, Division of Plasma Physics of the American Physical Society 1985
Vice-Chairman, Department of Astronomy , University of California, Berkeley 1984-1985
Chairman, Division of Astrophysics, American Physical Society, 1984-1985
Vice-Chairman, Division of Astrophysics, American Physical Society, 1983-1984
Member, National Academy of Sciences Physics Survey Panel on Space and Astrophysical
Plasmas, 1983-1984
Member, Organizing Committee, Workshop on Electron-Positron Pairs in Astrophysics ,
(Greenbelt, January 1983) 1982-1983
Co-Chairman, Organizing Committee, Workshop on Particle Acceleration Mechanisms in
Astrophysics (La Jolla, January 1979), 1978-1979
Listed in Who's Who, Who's Who in Frontiers of Science and Technology, and American Men and
Women of Science

MEMBERSHIPS:

American Astronomical Society
American Physical Society
American Geophysical Union
International Astronomical Union

CONSULTANT:

La Jolla Institute 1979
Lawrence Livermore National Laboratory, Physical Sciences Department 1982-93

GRANTS

California Space Institute CS 46--97 1997--1998 (PI) "Structure and High Energy Photon emission of Pulsar Polar Flow"

National Aeronautics and Space Administration NAG 5 4790, 1997--2000 (PI) "A Search for Nonthermal X-Ray Emission from Radio Pulsars"

National Science Foundation AST-9615093 1997--2000 (PI) "Theory of Pulsar Radio Emission"

National Aeronautics and Space Administration NAG 5--3073 1996--1999 (PI) "Physics of Rotation Powered Pulsars and Their Nebulae"

Plasma Physics Research Institute PP-93 15, 1993--1994 (PI) "Theory of Pitch-Angle Scattering and Magnetic Pumping in Relativistic Shock Waves"

Institute of Geophysics and Planetary Physics IGPP 93--12 1992--1993 (PI) "The Excitation of the Crab Nebula"

LLNL Plasma Physics Research Institute PP-92--01 1992--1993 (PI) "Theory of Pitch-Angle Scattering and Magnetic Pumping in Relativistic Shock Waves"

National Science Foundation AST-9115093 1992--1996 (PI) "Magnetospheres of Rotation Powered Pulsars"

Institute of Geophysics and Planetary Physics IGPP 92-23 1991-1992 (PI) "Relativistic Shock Waves and the Excitation of the Crab Nebula"

National Aeronautics and Space Administration NAGW-2413 1991--1995 (PI) "Dynamics of Polar Cap Accretion onto Neutron Stars"

Institute of Geophysics and Planetary Physics IGPP 91-27 1990-1991 (PI) "Relativistic Shock Waves in Synchrotron Sources"

Institute of Geophysics and Planetary Physics IGPP 90 14 1989-1990 (PI) "Relativistic Shock Waves in Synchrotron Sources"

Institute of Geophysics and Planetary Physics IGPP 89-05 1988-1989 (PI) "Plasma Astrophysics"

National Aeronautics and Space Administration NAGW-1301 1987-1990 (Co-PI) "Theoretical Studies of Active Galactic Nuclei"

Institute of Geophysics and Planetary Physics IGPP 88-11 1987-1988 (PI) "Plasma Astrophysics"

National Science Foundation AST 86-15816 1987-1991 (PI) "Physics of Neutron Star Magnetospheres"

Institute of Geophysics and Planetary Physics IGPP 87-11 1986-1987 (PI) "Plasma Astrophysics"

California Space Institute CS24-86 1986-1987 (PI) "Radiation Driven Jets from Neutron Stars"

Institute of Geophysics and Planetary Physics IGPP 86-09 1985-1986 (PI) "Plasma Astrophysics"

Institute of Geophysics and Planetary Physics IGPP 85-06 1984-1985 (PI) "Plasma Astrophysics"

California Space Institute CS 71-84 1984-1985 (Co-PI)

National Science Foundation AST--8317462 1984-1987 (PI) "Physics of Pulsar Magnetospheres"

Institute of Geophysics and Planetary Physics IGPP 82-04 1982-1984 (PI) "High Mach Number
Collisionless Shock Waves"

National Science Foundation AST 82-15456 1983-1984 (Co-PI) "Theoretical Astrophysics"

California Space Institute CS 41-82 1982-1983 (PI) "Theoretical Investigation of X-Ray Pulsars"

National Science Foundation AST 79-23243 1980-1983 (Co-PI) "Theoretical Astrophysics"

National Science Foundation AST 78-21070 1979-1982 (PI) "Theoretical Investigations of X-Ray
Sources"

National Science Foundation AST 77-23069 1978-1980 (Co-PI) "Theoretical Astrophysics"

National Science Foundation AST 76-18879 1977-1978 (PI) "Theoretical Investigations of X-Ray
Sources"

National Science Foundation AST 75-02181 1976-1977 (Co-PI) "Interstellar Physics"

INVITED LECTURES

numbers in parentheses refer to papers cited in bibliography

1. Discussion leader, Workshop on Cosmic Rays, Frascati, Italy, May 1974
2. Discussion leader, Workshop on Plasma Astrophysics, Aspen Center for Physics, Aspen, Colorado, June 1977
3. Invited Speaker, Gordon Research Conference on Magnetic Reconnection, June 1977
4. Invited Participant and Speaker, US National Academy of Sciences -USSR Academy of Sciences Research Seminar on Compact X-Ray Sources, Protvino, USSR, 15 August - 4 September 1977
5. Discussion leader, Workshop on Astronomical Instrumentation of the 1980s, Aspen Center for Physics, Aspen, Colorado, June 6-30, 1978
6. Invited Speaker, NASA/JPL Workshop on Planetary and Astrophysical Magnetospheres, Snowmass, Colorado, 30 July-5 August 1978 (27)
7. Invited Speaker, Sydney Chapman Conference on Magnetospheric Boundary Layers, Alpbach, Austria, 11--15 June 1979 (26)
8. Invited Speaker, IAU/IUPAP Symposium No. 94, "Origin of Cosmic Rays", Bologna, Italy, 11--14 June 1980 (30)
9. Invited Speaker, IAU Symposium No. 95, "Pulsars", Bonn, Federal Republic of Germany, 26--29 August 1980 (31)
10. Invited Speaker, Summer School and Workshop on Plasma Astrophysics, Varenna, Italy, 27 August 7--September 1981 (33)
11. Invited Speaker, 1982 Annual Meeting of the American Physical Society, San Francisco, 25--28 January 1982 (20 of Abstracts)
12. Invited Speaker, Workshop on Space and Astrophysical Plasmas, Institute for Theoretical Physics, Santa Barbara, CA, 28 June -- 2 July 1982
13. Invited Speaker, 24th Annual Meeting of the Division of Plasma Physics of the American Physical Society, New Orleans, 1-5 November 1982 (21 of Abstracts)
14. Invited Speaker, XIth Texas Symposium on Relativistic Astrophysics, Austin, Texas, 13-17 December 1982 (39; also 24 of Abstracts)
15. Invited Speaker, Workshop on Electron-Positron Pairs in Astrophysics, NASA/Goddard Space Flight Center, Greenbelt, MD, 6-8 January 1983 (40)
16. Invited Speaker, Sixth Santa Cruz Workshop in Astrophysics "High Energy Transients", Santa Cruz, CA, 11--22 July 1985 (42, 43)
17. Invited Speaker, COSPAR/IAU Symposium on Advances in High Energy Astrophysics and Cosmology, Rojen, Bulgaria, 18--23 July 1983 (44)
18. Invited Speaker, American Geophysical Union/Sydney Chapman Conference on Magnetic Reconnection in Space and Laboratory Plasmas, Los Alamos, NM, 3--7 October 1983 (45)
19. Invited Speaker, Workshop on Gamma Ray Bursts, Stanford, CA, 30 July 3 ---August 1984 (49)
20. Invited Participant, Workshop on Recent Advances in the Physics of Pulsars, Aspen Center for Physics, Aspen, CO, 13--25 August 1984
21. Invited Speaker, XIXth General Assembly of the International Union of Radio Science (URSI), Florence, Italy, 27 August 7---September 1984

22. Invited Speaker, Workshop on Time Variability in Compact X-Ray Sources, Taos, NM, 5--9 August 1985
23. Invited Speaker, Mediterranean School on Plasma Astrophysics, Kolymbari, Crete, Greece, 23 September--4 October 1985 (52, and 28 of Abstracts)
24. Invited Speaker, IAU Symposium No. 125, "The Origin and Evolution of Neutron Stars", Nanjing, People's Republic of China, 26-30 May, 1986 (54, and 39, 40 of Abstracts)
25. Invited Speaker, Joint Varenna-Abastumani Workshop on Plasma Astrophysics, Varenna, Italy, August 24-September 3, 1988 (63)
26. Invited Speaker, Annual Meeting of the American Association for the Advancement of Science, San Francisco, January 15--20, 1989
27. Invited Speaker, IAU Colloquium No. 128, "Magnetospheric Structure and Emission Mechanisms of Radio Pulsars", Lagow, Poland, June 17--23, 1990 (69)
28. Invited Speaker, Max Planck Institute Conference "Galactic Particle Accelerators", Schloss Ringberg, Germany, November 12--16, 1990
29. Invited Speaker, NATO Advanced Workshop "X-Ray Binaries and the Formation of Binary and Millisecond Radio Pulsars", Institute for Theoretical Physics, Santa Barbara, CA, January 21--25, 1991 (73)
30. Invited Speaker, International Workshop "Collective Acceleration in Collisionless Plasmas", Institute d'Etudes Scientifiques, Cargese, France, June 9--15, 1991 (78)
31. Invited Speaker, SPIE International Symposium on Optical Science and Engineering, Technical Conference 1548 "Production and Analysis of Polarized X-Rays", San Diego, CA, July 21--26, 1991 (70)
32. Invited Speaker, "Workshop on Particle Acceleration in Cosmic Plasmas", Bartol Research Institute, University of Delaware, Newark, DE, December 4--6, 1991 (76)
33. Invited Speaker, "Workshop on Isolated Pulsars", Los Alamos National Laboratory, Taos, NM, February 24--28, 1992 (80)
34. Invited Speaker, Max Planck Institute Conference "Acceleration of Ultra-High Energy Particles", Schloss Ringberg, Germany, September 7--12, 1992
35. Invited Speaker, IAU Colloquium No. 142, "Particle Acceleration Phenomena in Astrophysical Plasmas", University of Maryland, January 11--15, 1993 (86)
36. Invited Speaker, International Workshop "Acceleration and Radiation Generation in Space and Laboratory Plasmas", Kardamyli, Greece, August 29--September 4, 1993.
37. Invited Speaker, Aspen Winter Workshop "Millisecond Pulsars: A Decade of Surprises", Aspen, Colorado, January 3--8, 1994 (89)
38. Invited Speaker, American Physical Society Spring Meeting, April 18--22, 1994 --- Joint Symposium of the Division of Beams and the Division of Plasma Physics (49 of Abstracts)
39. Invited Speaker, Marcel Grossman Conference on General Relativity and Relativistic Astrophysics VII, July 25--29, 1994, Stanford, CA
40. Invited Speaker, Workshop on TeV Gamma Ray Astrophysics, October 2--7, 1994, Heidelberg, Germany (93)
41. Invited Speaker, American Physical Society Division of Beams Meeting, May 1--5, 1995, Dallas, Texas
42. Invited Speaker, Third Compton Symposium on Gamma Ray Astronomy and Astrophysics, July 12--14, 1995, Munich, Germany (96--97)
43. Invited Speaker, IAU Colloquium No. 160, "Pulsars: Progress and Problems", January 8--13, 1996, Sydney, Australia (98--100)

44. Invited Speaker, "Neutron Stars and Pulsars --- Thirty Years after the Discovery", November 17--20, 1997, Tokyo, Japan
45. Invited Speaker, "The Relationship between Neutron Stars and Supernova Remnants", June 1--4, 1998, Elba Island, Italy (105)
46. Invited Speaker, IAU Colloq. No. 177, "Pulsar Astronomy --- 2000 and Beyond", August 30--September 3, 1999, MPI fur Radioastronomie, Bonn, Germany (106)
47. Invited Speaker, Institute for Theoretical Physics Conference on Astrophysical Turbulence, May 8--12, 2000, Santa Barbara, CA
48. Invited Speaker, International Symposium on High Energy Gamma-Ray Astronomy, June 26--30, 2000, Heidelberg, Germany

BOOKS

Particle Acceleration Mechanisms in Astrophysics , 1979, eds. J. Arons, C.E. Max and C.F.McKee (New York: American Institute of Physics)

BOOK REVIEWS

"Neutron Stars, Black Holes and Binary X-Ray Sources" by H. Gursky and R. Ruffini, 1976, *Science*, **191**, 76

"Neutron Stars" by J.M. Irvine, 1979, *Nature*, **281**, 613

"Plasma Astrophysics" by D.B. Melrose, 1983, *Geophysical and Astrophysical Fluid Dynamics*, **23**, 335

"Physics of the Pulsar Magnetosphere" by V.S. Beskin, A.V. Gurevich and Ya.N. Istomin, 1994, *Physics Today*, **47**, 71--2; 1995, *Physics Today*, **48**, 90 91

UNPUBLISHED REPORTS

Physical Processes in Intergalactic Matter, 1970, Ph.D. Dissertation, Harvard University

PUBLISHED ABSTRACTS

1. On the Radiative Transfer of Isotropic X-Rays and Gamma Rays, 1970, *Bull. Am. Astron. Soc.*, **2**, 180
2. Photoionized Intergalactic Hydrogen, 1971, *Bull. Am. Astron. Soc.*, **2**, 437 (with D.W. Wingert)
3. A Multiple Pulsar Model for QSOs and Seyfert Nuclei, 1971, *Bull. Am. Astron. Soc.*, **3**, 237 (with J.E.Gunn, R.M. Kulsrud and J.P. Ostriker)
4. Parametric Instabilities in the Crab Nebula, 1974, *Bull. Am. Astron. Soc.*, **6**, 3 (with C.E. Max)
5. Parametric Instabilities in the Crab Nebula, 1974, *Bull. Am. Phys. Soc.*, **18**, 1266 (with C.E. Max)
6. Hydrodynamic Atmospheres for the Companions of Binary X-Ray Sources, 1974, *Bull. Am. Astron. Soc.*, **6**, 280 (with L. Anderson)
7. Self-Precession and Frequency Shift of a Large Amplitude Electromagnetic Wave, 1974, *Bull. Am. Phys. Soc.*, **19**, 890 (with C.E. Max)
8. Accretion onto Magnetized Neutron Stars: A Self-Consistent Solution, 1976, *Bull. Am. Astron. Soc.*, **8**, 452 (with S.M. Lea)
9. X-Rays Produced by the Interaction of the Crab Nebula with the Interstellar Medium, 1976, *Bull. Am. Astron. Soc.*, **8**, 449 (with R.D. Blandford, C.E. Max and G. Zimmerman)
10. Two-Dimensional Magnetized HII Regions, 1976, *Bull. Am. Phys. Soc.*, **21**, 1151 (with C.E. Max and G. Zimmerman)
11. Excitation of the Crab Nebula by Strong Waves, 1976, *Publ. Astron. Soc. of the Pacific*, **88**, 603 (with C.A. Norman and C.E. Max)
12. Accretion onto Magnetized Neutron Stars: The Fate of Sinking Filaments, 1976, *Bull. Am. Astron. Soc.*, **8**, 561 (with S.M. Lea)
13. Potential Drops and Pair Production above Pulsar Polar Caps, 1976, *Bull. Am. Astron. Soc.*, **8**, 563 (with W.M. Fawley and E.T. Scharlemann)
14. Pulsars as Foil-less Diodes, 1979, *Bull. Am. Phys. Soc.*, **24**, 1089
15. Global Solutions for Beam Models of Pulsar Magnetospheres, 1980, *Bull. Am. Phys. Soc.*, **25**, 914 (with D.F. Smith and L. Muth)

16. The Electric Fields in Non-Neutral Beam Models of Pulsar Magnetospheres, 1981, in IAU Symp. No. 95, 'Pulsars', W. Sieber and R. Wielebinski, eds. (Dordrecht: D. Reidel), 29-30 (with D.F. Smith and L. Muth)
17. Current Flow Patterns in Non-Neutral Beam models of Pulsar Magnetospheres, 1981, Bull. Am. Astron. Soc., 13, 851 (with D.F. Smith and L. Muth)
18. Wave Propagation in the Open Flux Zone of Pulsar Magnetospheres, 1981, Bull. Am. Astron. Soc., 13, 851 (with J.J. Barnard)
19. Two-Dimensional, Time Dependent Accretion onto Magnetic Neutron Stars, 1981, Bull. Am. Astron. Soc., 13, 902 (with R.I. Klein and S.M. Lea)
20. Radio Pulsars --- Observations and Theory, 1982, Bull. Am. Phys. Soc., 27, 4243 (invited paper)
21. Theory of Radio Pulsars, 1982, Bull. Am. Phys. Soc., 27, 933 (invited paper)
22. Decay and Regeneration of the Galactic Magnetic Field in the Presence of Cosmic Magnetic Monopoles, 1982, Bull. Am. Astron. Soc., 14, 890 (with R.D. Blandford)
23. Possible Structures for High Mach Number Collisionless Shock Waves, 1982, Bull. Am. Astron. Soc., 14, 937 (with A.B. Achterberg, F.V. Coroniti and C.E. Max)
24. On the Magnetization and Origin of the Millisecond Pulsar PSR 1937+214, 1984, in Proc. XIth Texas Symp. on Relativistic Astrophysics, D.S. Evans, ed. (New York: New York Academy of Sciences), 328
25. Plasma Simulation of Shock Acceleration, 1984, Bull. Am. Phys. Soc., 29, 1210 (with B.I. Cohen, A.B. Langdon, C.E. Max and A. L. Zachary)
26. Resistive Interchange Instabilities in the Polar Columns of Accreting, Magnetized Neutron Stars, 1985, Bull. Am. Phys. Soc., 30, 1471 - 1472 (with L. Hernquist and R.I. Klein)
27. Plasma Simulation of Shock Acceleration: Effects of Magnetic Trapping, 1985, Bull. Am. Phys. Soc., 30, 1471 (with B.I. Cohen, A.B. Langdon, C.E. Max and A.L. Zachary)
28. Physics of Polar Cap Accretion onto Neutron Stars, 1986, in Proc. Mediterranean School on Plasma Astrophysics, 'Plasma Penetration into Magnetospheres', N. Kylafis, J. Papamastorakis and J. Ventura, eds. (Iraklion: Crete University Press), 141-142
29. Radiation Gas Dynamics and MHD Stability of Polar Cap Accretion onto Magnetized Neutron Stars, 1986, Bull. Am. Phys. Soc., 31, 811 (with L. Hernquist and R.I. Klein)
30. Cosmic Ray Diffusion ahead of a Supernova Remnant Shock Wave, 1986, Bull. Am. Phys. Soc., 31, 812 (with A. Zachary, B.I. Cohen and C.E. Max)

31. Simulations of Cosmic Ray Diffusion Ahead of a Supernova Remnant Shock Wave, 1986, Bull. Am. Phys. Soc., 31, 1393-4 (with A.L. Zachary, C.E. Max and B.I. Cohen)
32. Non-Quasi-Linear Behavior of Cosmic Ray Scattering by Alfvén-Wave Turbulence, 1986, Bull. Am. Phys. Soc., 31, 1384 (with C.E. Max, A.L. Zachary and B.I. Cohen)
33. Dissipation in Relativistic Collisionless Shocks, 1986, Bull. Am. Phys. Soc., 31, 1456 (with A.B. Langdon and C.E. Max)
34. Non-Quasi-Linear Behavior of Cosmic-Ray Scattering by Alfvén-Wave Turbulence, 1986, Eos, 67, 1144 (with A. Zachary, C.E. Max and B.I. Cohen)
35. Thermal Cyclotron Reprocessing of Gamma Ray Bursts, 1987, Bull. Am. Astron. Soc., 18, 928 (with D. Hartmann and S.E. Woosley)
36. High Luminosity Accretion in Wind Driven Binary X-Ray Sources, 1987, Bull. Am. Astron. Soc., 18, 929 (with C. Ho)
37. Simulations of Cosmic Ray Diffusion Ahead of a Supernova Shock Wave, 1987, Bull. Am. Astron. Soc., 18, 908 (with A.L. Zachary, C.E. Max and B.I. Cohen)
38. Non-Quasi-Linear Behavior of Cosmic Ray Scattering by Alfvén Wave Turbulence, 1987, Bull. Am. Astron. Soc., 18, 908 (with C.E. Max, A.L. Zachary and B.I. Cohen)
39. Polar Cap Accretion onto Magnetized Neutron Stars: An Analytic Solution, 1987, in Proc. IAU Symp. No. 125, 'Origin and Evolution of Neutron Stars', D.J. Helfand and J.-H. Huang, eds. (Dordrecht: D. Reidel), 245 (with R.I. Klein)
40. Radiation Gas Dynamics of Polar Cap Accretion onto Magnetized Neutron Stars: Numerical Calculations, 1987, in Proc. IAU Symp. No. 125, 'Origin and Evolution of Neutron Stars', D.J. Helfand and J.-H. Huang, eds. (Dordrecht: D. Reidel), 246 (with R.I. Klein)
41. Radiation Gas Dynamics of Polar Cap Accretion onto Magnetized Neutron Stars: An Analytic Solution, 1987, Bull. Am. Astron. Soc., 19, 794-795 (J. Arons and R.I. Klein)
42. Structure of Relativistic Shock Waves in Magnetized Electron-Positron Plasma, 1988, Bull. Am. Phys. Soc., 33, 1895 (with Y. Gallant, A.B. Langdon and C.E. Max)
43. Relativistic Kinetic Shock Waves in Synchrotron Sources: Shock Structure and Non-Thermal Acceleration of Positrons, 1991, Bull. Am. Astron. Soc., 23, 918 (with M. Hoshino, Y.A. Gallant, A.B. Langdon and C.E. Max)
44. J. Arons, Photon Bubbles: Overstability in a Magnetized Atmosphere, 1991, Bull. Am. Astron. Soc., 23, 967

45. Y.A. Gallant and J. Arons, A Shocked Pulsar Wind Model of the Crab Nebula's Wisps, 1993, Bull. Am. Astron. Soc., 25, 785
46. J. Arons and I.R. King, A Reprocessing Model for the UV and Optical Light from 4U 1820--30, 1993, Bull. Am. Astron. Soc., 25, 801
47. T.-Y. B. Yang, Y. Gallant, J. Arons and A.B. Langdon, Weibel Instability in Relativistic Electron-Positron Plasmas, 1993, Bull. Am. Astron. Soc., 25, 912
48. T.-Y. B. Yang, Y. Gallant, J. Arons and A.B. Langdon, 1993, Weibel Instability in Relativistic Electron-Positron Plasmas, Bull. Am. Phys. Soc., 38, 2017
49. J. Arons, 1994, Relativistic Shock Waves and the Excitation of the Crab Nebula, Bull. Am. Phys. Soc., 39, 1160

PUBLICATIONS IN REFEREED JOURNALS AND CONFERENCE PROCEEDINGS

1. J. Arons and J.I. Silk, 1968, On the Jeans Criterion in Relativistic Cosmology , *Monthly Notices of the Royal Astronomical Society*, **140**, 231-239 ()
2. J. Arons and R.A. McCray, 1969, Interaction of Cosmic Gamma Rays with Intergalactic Matter , *Astrophys. J. (Letters)*, **158**, L91--95 ()
3. J. Arons and R.A. McCray, 1970, "Photo-Ionization of Intergalactic Matter by Quasars," *Astrophys. Letters*, 5, 123--126 ()
4. J. Arons, 1971, "Radiative Transfer of Isotropic XRays and Gamma Rays. I. Theory and Solutions for a Uniform Medium," *Astrophys. J.*, 164, 437--455 ()
5. J. Arons, 1971, "Radiative Transfer of Isotropic XRays and Gamma Rays. II. High Energy Radiation in the Expanding Universe," *Astrophys. J.*, 164, 457--468 ()
6. J. Arons, R.A. McCray and J.I. Silk, 1971, "Interaction of Fast Particles with Intergalactic Matter," *Astrophys. J.*, 170, 431--447 ()
7. J. Arons, 1972, "Low Mass Protogalaxies and Absorption Lines in Quasi-Stellar Objects," *Astrophys. J.*, 172, 553-562 ()
8. J. Arons and D.W. Wingert, 1972, "Theoretical Models of Photoionized Intergalactic Hydrogen," *Astrophys. J.*, 172, 1 ()
9. J. Arons, 1972, "Non-Linear Inverse Compton Radiation and the Circular Polarization of the Diffuse Radiation from the Crab Nebula," *Astrophys. J.*, 177, 395--410 ()
10. J. Arons and J.N. Bahcall, 1972 "Some Observational Distinctions among Models of Pulsing X-Ray Binaries," *Astrophys. Letters*, 11, 191-194 ()
11. J. Arons, 1973, "Self-Excited Flow in Binary X-Ray Sources," *Astrophys. J.*, 184, 539--550 ()
12. C.E. Max, J. Arons and A.B. Langdon, 1974, "Self-Modulation and Self-Focusing of Electromagnetic Waves in Plasma," *Phys. Rev. Letters*, 33, 209--212 ()
13. J. Arons and C. E. Max, 1974, "Self-Precession and Frequency Shift for Electromagnetic Waves in Homogeneous Plasmas," *Phys. Fluids*, 17, 1983-1994 ()
14. J. Arons and C.E. Max, 1975, "Hydromagnetic Waves in Molecular Clouds," *Astrophys. J. (Letters)*, 196, L77--L81 ()

- refereed publication
 R — invited review

15. J. Arons, R.M. Kulsrud and J.P. Ostriker, 1975, "A Multiple Pulsar Model for Quasi-Stellar Objects and Active Galactic Nuclei," *Astrophys. J.*, 198, 687--707 ()
16. R.M. Kulsrud and J. Arons, 1975, "Statistical Acceleration of Particles in an Assembly of Spherical Electromagnetic Waves," *Astrophys. J.*, 198, 709-715 ()
17. J.I. Silk and J. Arons, 1975, "On the Nature of the Globular Cluster X-Ray Sources," *Astrophys. J. (Letters)*, 200, L131-135 ()
18. J. Arons and S.M. Lea, 1976, "Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere," *Astrophys. J.*, 207, 914--936 ()
19. J. Arons and S.M. Lea, 1976, "Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause," *Astrophys. J.*, 210, 791 804 ()
20. J. Arons, C.A. Norman and C.E. Max, 1977, "Electromagnetic Parametric Instabilities in an Ultrarelativistic Plasma," *Phys. Fluids*, 20, 1302--1310 ()
21. W.M. Fawley, J. Arons and E.T. Scharlemann, 1977, "Potential Drops above Pulsar Polar Caps: Acceleration of Non-Neutral Beams from the Stellar Surface," *Astrophys. J.*, 217, 227--243 ()
22. J. Arons and R.G. Spencer, 1978, "Are there Force-Free Fields in Neutron Star Interiors?," *Astrophys. J.*, 220, 640--642 ()
23. E.T. Scharlemann, J. Arons and W.M. Fawley, 1978, "Potential Drops above Pulsar Polar Caps: Ultrarelativistic Particle Acceleration along the Curved Magnetic Field," *Astrophys. J.*, 222, 297--316 ()
24. J. Arons and D.F. Smith, 1979, "Electrostatic Shear Flow Instability of Non-Neutral Beams in Pulsars," *Astrophys. J.*, 229, 728--733 ()
25. J. Arons and E.T. Scharlemann, 1979, "Pair Formation above Pulsar Polar Caps: Structure of the Low Altitude Acceleration Zone," *Astrophys. J.*, 231, 854--879 ()
26. J. Arons, 1979, "The Magnetospheres of Magnetic A Stars and of Pulsars," in *Proc. Chapman Conference on Magnetospheric Boundary Layers*, ESA SP--148, Bruce Battrock, ed. (Paris: European Space Agency), 271--279 (R)
27. J. Arons, 1979, "Some Problems of Pulsar Physics, or, I'm Madly in Love with Electricity," *Space Sci. Rev.*, 24, 437--510 (R)

--- refereed publication

R --- invited review

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29. M.C. Begelman, C.L. Sarazin, S.P. Hatchett, C.F. McKee and J. Arons, 1980, "Beam Models for SS433," *Astrophys. J.*, 238, 722--733 ()
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