

## Part XI

# References

- Aarseth, S. and Lecar, M. 1975, Computer simulations of stellar systems, *Ann. Rev. Astr. Ap.*, **13**, 1.
- Ables, J. G., Jacka, C. E., McConnell, D., Hamilton, P. A., McCulloch, P. M., and Hall, P. J. 1988. IAU circular 4602.
- Ables, J. G., McConnell, D., Jacka, C. E., McCulloch, P. M., Hall, P. J., and Hamilton, P. A. 1989, A millisecond pulsar in a 32-minute binary orbit, *Nature*, **342**, 158–161.
- Alekseev, J. I. and Dobysh, G. I. 1989, Multichannel pulsar receiver, *FIAN Transactions*, **199**, 118.
- Allakhverdiyev, A. O., Guseinov, O. H., and Yusifov, I. M. 1987, Spatial distribution of pulsars and supernova remnants, *Aust. J. Phys.*, **40**, 837–845.
- Alpar, A., Brinkmann, W., Kiziloğlu, U., Ögelman, H., and Pines, D. 1987, A search for X-ray emission from a nearby pulsar PSR1929+10, *Astr. Astrophys.*, **177**, 101–104.
- Alsop, M. A. and Sauls, J. A. 1988, On the dynamical coupling between the superfluid interior and the crust of a neutron star, *Astrophys. J.*, **327**, 723–725.
- Anawalt, R. A. and Bokseberg, A. 1989, *The Astronomical Almanac 1989*, (Washington, D. C.: U. S. Government Printing Office).
- Anderson, S., Kulkarni, S., Prince, T., and Wolszczan, A. 1989. IAU circular 4819.
- Anderson, S., Kulkarni, S., Prince, T., and Wolszczan, A. 1990a. IAU circular 5013.
- Anderson, S. B., Gorham, P. W., Kulkarni, S. R., Prince, T. A., and Wolszczan, A. 1990b, Discovery of two radio pulsars in the globular cluster M15, *Nature*, **346**, 42–44.
- Andreev, A. V., Emelyanov, V. I., and Ilyinski, Y. A. 1988, *Cooperative Phenomena in Optics*, (Moscow: Nauka).
- Andriessé, C. D. 1980, Josephson pulsars, *Astrophys. Space Sci.*, **70**, 173–178.
- Ardavan, H. 1981, Is the light cylinder the site of emission in pulsars?, *Nature*, **289**, 44.
- Ardavan, H. 1989, The light cylinder catastrophe, *Proc. Roy. Soc. London*, **424**, 113.
- Ardavan, H. 1991a, Asymptotic analysis of the radiation by quadrupole sources in supersonic rotor acoustics, *J. Fluid Mech.*, submitted.
- Ardavan, H. 1991b, The breakdown of the linearized theory and the role of quadrupole sources in transonic rotor acoustics, *J. Fluid Mech.*, **226**, 591.
- Argyle, E. and Gower, J. F. R. 1972, The pulse-height distribution for NP 0532, *Astrophys. J.*, **175**, L89–L91.
- Armstrong, J. W. 1984, Interstellar scintillations and ultra-low-frequency gravitational wave observations, *Nature*, **307**, 527.
- Arnett, W. D., Bahcall, J. N., Kirshner, R. P., and Woosley, S. E. 1989, Supernova 1987A, *Ann. Rev. Astr. Ap.*, **27**, 629.
- Arnett, W. D. and Bowers, R. L. 1977, A microscopic interpretation of neutron star structure, *Astrophys. J. Supp. Series*, **33**, 415–436.
- Arons, J. 1979, Some problems of pulsar physics, or, I'm madly in love with electricity, *Space Sci. Rev.*, **24**, 437–510.
- Arons, J. 1981a, Pair creation above pulsar polar caps: Steady flow in the surface acceleration zone, *Astrophys. J.*, **248**, 1099–1116.
- Arons, J. 1981b, Pulsar theory: Particle acceleration and photon emission in the polar flux tube, in *Proc. International Summer School and Workshop on Plasma Physics*, ed. T. D. Guyenne, volume ESA SP-161, (Paris: European Space Agency), 273–280.
- Arons, J. 1981c, The slot gap model of pulsars, in *Pulsars, 13 Years of Research on Neutron Stars, IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 69–86.
- Arons, J. 1983a, Electron-positron pairs in radio pulsars, in *Proc. Workshop on Electron-Positron Pairs in Astrophysics*, ed. M. L. Burns, A. K. Harding, and R. Ramaty, (New York: American Institute of Physics), 163.
- Arons, J. 1983b, On the magnetization and origin of the millisecond pulsar PSR1937+214, *Nature*, **302**, 301–305.
- Arons, J. 1983c, Pair creation above pulsar polar caps: Geometrical structure and energetics of slot gaps, *Astrophys. J.*, **266**, 215–241.
- Arons, J. and Barnard, J. J. 1983, Are pulsars externally triggered?, *J. Astron. and Astrophys. (India)*, **4**, 191–196.
- Arons, J. and Barnard, J. J. 1986, Wave propagation in pulsar magnetospheres: Dispersion relations and normal modes of plasmas in superstrong magnetic fields, *Astrophys. J.*, **302**, 120–137.
- Arons, J., Hoshino, M., and Gallant, Y. A. 1990, Sychrotron instabilities, absorption and suprathermal particle acceleration in relativistic, magnetosonic shock waves, *Astrophys. J.*, (submitted).
- Arons, J., Norman, C. A., and Max, C. E. 1977, Electromagnetic parametric instabilities in an ultrarelativistic plasma, *Phys. Fluids*, **20**, 1302.
- Arons, J. and Scharlemann, E. T. 1979, Pair formation above pulsar polar caps: Structure of the low altitude acceleration zone, *Astrophys. J.*, **231**, 854–879.
- Artyuch, V. S., Pynza'r, A. V., Smirnova, T. V., and Udalt'zov, V. A. 1984, The determination of the distance to PSR1937+214, *Astron. Zh.*, **61**, 515.
- Aschenbach, B. and Brinkman, W. 1975, A model of the x-ray structure of the Crab nebula, *Astr. Astrophys.*, **41**, 147.
- Ashworth, M., Lyne, A. G., and Smith, F. G. 1983, The 1.5 ms pulsar PSR1937+21, *Nature*, **301**, 313–314.
- Asséo, E., Kennel, K. F., and Pellat, R. 1978, Synchrotron radiation damping of relativistically strong linearly polarized plasma waves, *Astr. Astrophys.*, **65**, 401.
- Asséo, E., Pellat, R., and Rosado, M. 1980, Pulsar radio emission from beam plasma instability, *Astrophys. J.*, **239**, 661–670.
- Asséo, E., Pellat, R., and Sol, H. 1981, Pulsar radio emission and bunching mechanisms, in *Pulsars, 13 Years of Research on Neutron Stars, IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 111–113.
- Asséo, E., Pellat, R., and Sol, H. 1983, Radiative or two stream instability as a source for pulsar radio emission, *Astrophys. J.*, **266**, 201–214.
- Asséo, E., Pelletier, G., and Sol, H. 1990, A nonlinear radio pulsar emission mechanism, *Mon. Not. R. astr. Soc.*, **247**, 529–548.
- Baars, J. W. M., Genzel, R., Pauliny-Toth, I. I. K., and Witzel, A. 1977, The absolute spectrum of Cas A; An accurate flux density scale and a set of secondary calibrators, *Astr. Astrophys.*, **61**, 99–106.

- Backer, D. C. 1970, Correlation of subpulse structure in a sequence of pulses from pulsar PSR 1919+21, *Nature*, **227**, 692–695.
- Backer, D. C. 1971, Radio intensity fluctuations in pulsars. PhD thesis, Cornell University.
- Backer, D. C. 1973, Pulsar fluctuation spectra and the generalized drifting subpulse phenomenon, *Astrophys. J.*, **182**, 245–276.
- Backer, D. C. 1976, Pulsar average wave forms and hollow-cone beam models, *Astrophys. J.*, **209**, 895–907.
- Backer, D. C. 1987, Millisecond pulsar surveys, in *IAU Symposium No. 125: The origin and evolution of neutron stars*, ed. D. J. Helfand and J. -H. Huang, (Dordrecht: D. Reidel), 13–21.
- Backer, D. C., Boriakoff, V., and Manchester, R. N. 1973, Wide integrated pulse profiles of pulsars, *Nature Phys. Sci.*, **234**, 77.
- Backer, D. C. and Rankin, J. M. 1980, Statistical summaries of polarized pulsar radiation, *Astrophys. J. Supp. Series*, **42**, 143–173.
- Backus, P. R. 1981, A study of pulsar evolution through timing and single pulse observations. PhD thesis, The University of Massachusetts.
- Backus, P. R. and Gilbert, F. 1961, *Proc. Nat. Acad. Sci.*, **47**, 362.
- Bailes, M. 1988, Geodetic precession in binary pulsars, *Astr. Astrophys.*, **202**, 109–112.
- Bailes, M. 1989, The origin of pulsar velocities and the velocity–magnetic moment correlation, *Astrophys. J.*, **342**, 917–927.
- Bailes, M., Manchester, R. N., Kesteven, M. J., Norris, R. P., and Reynolds, J. E. 1989, The proper motion of the Vela pulsar, *Astrophys. J.*, **343**, L53–L55.
- Bailes, M., Manchester, R. N., Kesteven, M. J., Norris, R. P., and Reynolds, J. E. 1990, The parallax and proper motion of PSR 1451–68, *Nature*, **343**, 240–241.
- Baranov, V. B. and Krasnobaev, K. B. 1986, *Hydrodynamic Theory of Cosmic Plasma*, (Moscow: Nauka Press).
- Bardeen, J. M., Press, W. H., and Teukolsky, S. A. 1972, Rotating black holes: Locally nonrotating frames, energy extraction, and scalar synchrotron radiation, *Astrophys. J.*, **178**, 347–369.
- Barker, B. M. and O’Connell, R. F. 1975a, *Phys. Rev.*, **12**, 329.
- Barker, B. M. and O’Connell, R. F. 1975b, Relativistic effects in the binary pulsar PSR 1913+16, *Astrophys. J.*, **199**, L25–L26.
- Barnard, J. J. 1986, Probing the magnetic field of radio pulsars: A reexamination of polarization position angle swings, *Astrophys. J.*, **303**, 280–291.
- Barnard, J. J. and Arons, J. 1986, Wave propagation in pulsar magnetospheres: Refraction of rays in the open flux zone, *Astrophys. J.*, **302**, 138–162.
- Bartel, N. 1981, Evidence for ultra broad band absorption of radio emission in the pulsar magnetosphere, *Astr. Astrophys.*, **97**, 384–387.
- Bartel, N. and Hankins, T. H. 1982, 100-nanosecond time resolution observations of PSR 1133+16, *Astrophys. J.*, **254**, L35–L39.
- Bartel, N., Kardashev, N. S., Kuz’min, A. D. Nikolaev, N. Y., Popov, M. V., Sieber, W., Smirnova, T. V., Soglasnov, V. A., and Wielebinski, R. 1981, Simultaneous two-station single pulse observations of radio pulsars over a broad frequency range: I. With particular reference to PSR 0809+74, *Astr. Astrophys.*, **93**, 85–92.
- Bartel, N., Morris, D., Sieber, W., and Hankins, T. H. 1982, The mode-switching phenomenon in pulsars, *Astrophys. J.*, **258**, 776–789.
- Bartel, N., Sieber, W., and Graham, D. A. 1980, The millisecond intensity variation in the emission of radio pulsars, *Astr. Astrophys.*, **87**, 282–291.
- Bash, F. N., Bozayan, F. A., and Torrance, G. W. 1970, Observations of CP 1919 and NP 0532 at 38 MHz, *Astrophys. Lett.*, **7 N1**, 39–44.
- Baym, G., Pethick, C., and Pines, D. 1969, Electrical conductivity of neutron star matter, *Nature*, **224**, 673.
- Baym, G., Pethick, C., and Sutherland, P. 1971, The ground state of matter at high densities: Equation of state and stellar models, *Astrophys. J.*, **170**, 299–317.
- Begelman, M. C. and Kirk, J. 1990, Shock drift particle acceleration in superluminal shocks: A model for hotspots in extragalactic sources, *Astrophys. J.*, **353**, 66–80.
- Bell, A. R. 1978, The acceleration of cosmic rays in shock fronts, *Mon. Not. R. astr. Soc.*, **182**, 147.
- Belyaev, S. T. and Budker, G. K. 1956, *Dokl. Akad. Nauk. SSSR*, **107**, 807.
- Benford, G. and Buschauer, R. 1977, Coherent pulsar radio emission by antenna mechanisms: General theory, *Mon. Not. R. astr. Soc.*, **179**, 189.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1983a, *Soviet Phys. JETP*, **85**, 235.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1983b, Electrodynamics of a pulsar magnetosphere, *Soviet Phys. JETP*, **85**, 401–433.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1984, Spin-down of pulsars by the current: Comparison of theory with observations, *Astrophys. Space Sci.*, **102**, 301–326.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1986a, Physics of pulsar magnetospheres, *Soviet Phys. Usp.*, **29**, 946.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1986b, Theory of the radio emission of pulsars, *Astrophys. Space Sci.*, **146**, 205.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1987, Permittivity of a weakly inhomogeneous plasma, *Soviet Phys. JETP*, **92**, 1277.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1988a, Generation of radio waves in a pulsar magnetosphere, *Sov. Astron. Lett.*, **14**, 93.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1988b, Generation of the radio emission in the pulsar magnetosphere, *Pis'ma v Astron. Zh.*, **14**, 224.
- Beskin, V. S., Gurevich, A. V., and Istomin, Y. N. 1988c, Theory of the radio emission of pulsars, *Astrophys. Space Sci.*, **146**, 205–281.
- Bhatia, V. B., Chopra, N., Mujumdar, B., and Panchapakesan, N. 1988, Dependence of pulsar characteristics on the spacetime metric, *Astrophys. J.*, **326**, 63–69.
- Bhatia, V. B., Chopra, N., and Panchapakesan, N. 1988, The effect of photon capture and field ionization on high magnetic field pulsars, *Astrophys. Space Sci.*, **150**, 181–188.
- Bhattacharya, D. 1987, The influence of pulsars on supernova remnants. PhD thesis, Indian Institute of Science, Bangalore.
- Bhattacharya, D. 1989, The decay of neutron star magnetic fields, in *X-ray Binaries, Proc. 23rd ESLAB Symp.*, ed. J. Hunt and B. Battrock, (Noordwijk, The Netherlands: ESA), 179.
- Bhattacharya, D. 1990a, The evolution of the magnetic fields of neutron stars: An observational overview, in *Condensed Matter Properties of Neutron Stars*, ed. G. Srinivasan, (Singapore: World Scientific).

- Bhattacharya, D. 1990b, Thermal field growth in neutron stars: An alternative to 'injection'?, in *Neutron Stars and Their Birth Events*, ed. W. Kundt, (Dordrecht: Kluwer Academic Publishers), 133.
- Bhattacharya, D. 1992, The evolution of the magnetic fields of neutron stars, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 27–34.
- Bhattacharya, D. and Shukre, C. S. 1985, Has the Crab pulsar magnetic field grown after its birth?, *J. Astrophys. Astr.*, **6**, 233.
- Bhattacharya, D. and Srinivasan, G. 1986, On the implication of the recently discovered 5 millisecond binary pulsar PSR 1855+09, *Curr. Sci.*, **55**, 327.
- Bhattacharya, D. and van den Heuvel, E. P. J. 1991, The formation and evolution of binary and millisecond radio pulsars, *Phys. Rep.*, **203**, 1–124.
- Bhattacharya, D. and Verbunt, F. 1990, Radio pulsars and the scale height of ionized hydrogen, *Astr. Astrophys.* submitted.
- Biggs, J. D. 1986, A study of the individual pulses from southern radio pulsars. PhD thesis, University of Sydney.
- Biggs, J. D. 1990a, Main pulse-interpulse correlation and mode changing in PSR 1055–52, *Mon. Not. R. astr. Soc.*, **246**, 341–348.
- Biggs, J. D. 1990b, Meridional compression of radio pulsar beams, *Mon. Not. R. astr. Soc.*, **245**, 514.
- Biggs, J. D., Hamilton, P. A., McCulloch, P. M., and Manchester, R. N. 1985a, The drifting subpulses of pulsar 0148–06, *Mon. Not. R. astr. Soc.*, **214**, 47P.
- Biggs, J. D., Lyne, A. G., Hamilton, P. A., McCulloch, P. M., and Manchester, R. N. 1988, A search for interpulses from southern pulsars, *Mon. Not. R. astr. Soc.*, **235**, 255–260.
- Biggs, J. D., Lyne, A. G., Manchester, R. N., and Ashworth, M. 1990. IAU circular 4988.
- Biggs, J. D., McCulloch, P. M., Hamilton, P. A., and Manchester, R. N. 1987, The drifting subpulses of pulsar 0818–13, *Mon. Not. R. astr. Soc.*, **228**, 119.
- Biggs, J. D., McCulloch, P. M., Hamilton, P. A., Manchester, R. N., and Lyne, A. G. 1985b, A study of PSR 0826–34 — a remarkable pulsar, *Mon. Not. R. astr. Soc.*, **215**, 281–294.
- Birdsall, C. and Langdon, A. B. 1985, *Plasma Physics via Computer Simulation*, (New York: McGraw-Hill).
- Bisnovatyi-Kogan, G. S. 1979, *Rivista del Nuovo Cimento*, **2**, 1.
- Bisnovatyi-Kogan, G. S. 1989, Two generations of low-mass x-ray binaries and recycled radio pulsars, *Astrofizika*, **31**, 567–577.
- Bisnovatyi-Kogan, G. S. 1990, Recycled pulsars, *Astrofizika*, **32**(1), 193–194.
- Bisnovatyi-Kogan, G. S. and Komberg, B. V. 1974, Pulsars and close binary systems, *Sov. Astron.*, **18**, 217.
- Bisnovatyi-Kogan, G. S. and Romanova, M. M. 1983, X-ray burster sources: Their origin and evolution, *Astron. Zh.*, **60**, 900–908.
- Björnsson, C. I. 1984, Pulsar polarization as a direct consequence of the emission process, *Mon. Not. R. astr. Soc.*, **208**, 293–307.
- Blaauw, A. 1985, The progenitors of the local pulsar population, in *Birth and Evolution of Massive Stars and Stellar Groups*, ed. W. Boland and H. van Woerden, (Dordrecht: D. Reidel), 211–224.
- Blair, D. G. and Candy, B. N. 1989, The evolution of pulsars, in *Timing Neutron Stars*, (NATO ASI series), ed. H. Ögelman and E. P. J. van den Heuvel, (Dordrecht: Kluwer Academic Publishers), 609–625.
- Blandford, R. D. 1975, Amplification of radiation by relativistic particles in a strong magnetic field, *Mon. Not. R. astr. Soc.*, **170**, 551.
- Blandford, R. D., Applegate, J. H., and Hernquist, L. 1983, Thermal origin of neutron star magnetic fields, *Mon. Not. R. astr. Soc.*, **204**, 1025–1048.
- Blandford, R. D., Narayan, R., and Romani, R. W. 1984, Arrival-time analysis for a millisecond pulsar, *J. Astrophys. Astr.*, **5**, 369–388.
- Blandford, R. D. and Romani, R. W. 1988, On the interpretation of pulsar braking indices, *Mon. Not. R. astr. Soc.*, **234**, 57P.
- Blaskiewicz, M., Cordes, J. M., and Wasserman, I. 1991, A relativistic model of pulsar polarization, *Astrophys. J.*, **370**, 643–669.
- Blinnikov, S. I., Novikov, I. D., Perevodchikova, T. V., and Polnarev, A. G. 1984, On the possibility of a neutron star explosion in a close binary, *Astron. Zh.*, **10**, 422–428.
- Blondin, J. M. and Freese, K. 1986, Is the 1.5 ms pulsar a young neutron star?, *Nature*, **323**, 786–788.
- Bogovalov, S. V. 1989, Plasma ejection by pulsars, *Pis'ma v Astron. Zhurnal*, **15**, 1081. (in Russian).
- Bogovalov, S. V. 1990, Particle acceleration and gamma-ray production near the light cylinder of an axisymmetric rotator, *Sov. Astron. Lett.*, **16**, 844–853.
- Bogovalov, S. V. 1992, An analytical solution of the problem of plasma ejection from the magnetosphere of an axisymmetric rotator, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 246–248.
- Bogovalov, S. V. and Kotov, Y. D. 1988, Physics of the neutron stars, in *Pulsars and Bursters*, 91.
- Bolotovskii, B. M. and Ginzburg, V. L. 1972, The Vavilov-Cherenkov effect and the Doppler effect in the motion of sources with superluminal velocity in vacuum, *Soviet Phys. Usp.*, **15**, 184. in Russian.
- Bonin, K. D., McDonald, K. T., Russell, D. P., and Flanz, J. B. 1986, Observation of interference between Cerenkov and synchrotron radiation, *Phys. Rev. Lett.*, **57**, 2264.
- Boriakoff, V. 1973. Pulsar radio frequency observations with a digital pulsar processor. Technical Report 38, NAIC Publication, Arecibo, Puerto Rico.
- Boriakoff, V. 1974, A digital pulsar processor, *Astr. Astrophys. Suppl. Ser.*, **15**, 479–481.
- Boriakoff, V. 1976, Pulsar AP 2016+28: High frequency periodicity in the pulse microstructure, *Astrophys. J.*, **208**, L43–L46.
- Boriakoff, V. 1983, On the radio pulse emission mechanism of PSR 1133+16: Simultaneous dual-frequency high time resolution observations, *Astrophys. J.*, **272**, 687.
- Boriakoff, V., Bucccheri, R., and Fauci, F. 1983, Discovery of a 6.1-ms binary pulsar, PSR 1953+29, *Nature*, **304**, 417.
- Boriakoff, V., Bucccheri, R., Fauci, F., Turner, K., and Davis, M. M. 1984, in *Birth and Evolution of Neutron Stars: Issues Raised by Millisecond Pulsars*, ed. S. P. Reynolds and D. R. Stinebring, (Green Bank, W. Va: National Radio Astronomy Observatory), 24.

- Boriakoff, V. and Ferguson, D. C. 1981, Microstructure cross-correlation in pulses simultaneously observed at frequencies separated by up to 1 GHz, in *Pulsars, 13 Years of Research on Neutron Stars, IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 191–196.
- Brinkmann, W. and Ögelman, H. 1987, Soft X-rays observations of radio pulsar PSR 1055-52, *Astr. Astrophys.*, **182**, 71–74.
- Bruck, Y. M. 1987, Decametric emission by pulsars, *Aust. J. Phys.*, **40**, 861.
- Bruck, Y. M. and Ulyanov, O. M. 1992, Observations of PSR 0823+26 and PSR 0943+10 in the decameter band, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars, IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 183–185.
- Bruck, Y. M. and Ustimenko, B. Y. 1973, Decametric pulsed radioemission from PSR 0809, PSR 1133, and PSR 1919, *Nature Phys. Sci.*, **242**, 58.
- Bruck, Y. M. and Ustimenko, B. Y. 1976, Decametric radio emission from four pulsars, *Nature*, **260**, 766.
- Bruck, Y. M. and Ustimenko, B. Y. 1977a, The interpulse radio-emission of PSR 1919+21 at the frequencies 16.7–38 MHz, *Astrophys. Space Sci.*, **51**, 225–227.
- Bruck, Y. M. and Ustimenko, B. Y. 1977b, Some features of the pulsed radiation from the pulsar 1919+21 at 16.7–38 MHz, *Astrophys. Space Sci.*, **49**, 349–366.
- Bruck, Y. M. and Ustimenko, B. Y. 1978, Determination of pulsed signal energy of unknown waveform in the presence of noise, *Preprint 101, IRE Ac. Sci. Ukr. SSR*. Kharkov.
- Bruck, Y. M. and Ustimenko, B. Y. 1979, The interpulse emission structure in pulsars, *Astr. Astrophys.*, **80**, 170.
- Buccheri, R. et al. 1983, Search for pulsed gamma-ray emission from radio pulsars in the COS-B data, *Astr. Astrophys.*, **128**, 245.
- Buchler, J. R. and Barkat, Z. 1971, Clustering of nucleons in low-density neutron star matter, *Astrophys. Lett.*, **7**, 167–170.
- Buneman, O. 1959, Dissipation of currents in ionized media, *Phys. Rev.*, **115**, 503–517.
- Buschauer, R. and Benford, G. 1976, General theory of coherent curvature radiation, *Mon. Not. R. astr. Soc.*, **177**, 109.
- Buschauer, R. and Benford, G. 1978, Physical mechanism of the Goldreich-Keeley radiative instability, *Mon. Not. R. astr. Soc.*, **185**, 493.
- Buschauer, R. and Benford, G. 1980, Narrowband versus broadband emission processes in pulsars, *Mon. Not. R. astr. Soc.*, **190**, 945–959.
- Buschauer, R. and Benford, G. 1983, Relativistic coherent curvature radiation, *Astr. Astrophys.*, **118**, 358.
- Buti, B. 1962, Plasma oscillations and Landau damping in a relativistic gas, *Phys. Fluids*, **5**(1), 1.
- Camenzind, M. 1990, 2D relativistic pulsar winds from rapidly rotating neutron stars, in *Neutron Stars and Their Birth Events*, ed. W. Kundt, (Dordrecht: Kluwer Academic Publishers), 139–177.
- Candy, B. N. and Blair, D. G. 1983, The evolution of radio pulsars, *Mon. Not. R. astr. Soc.*, **205**, 281.
- Candy, B. N. and Blair, D. G. 1986, The evolution of radio pulsars, *Astrophys. J.*, **307**, 535–539.
- Canuto, V. and Ventura, J. 1972, Quantum theory of the dielectric constant of a magnetized plasma and astrophysical applications I. Theory, *Astrophys. Space Sci.*, **18**, 104.
- Carroll, B. W., Zweibel, E. G., Hansen, C. J., McDermott, P. N., Savedoff, M. P., Thomas, J. H., and Van Horn, H. M. 1986, Oscillation spectra of neutron stars with strong magnetic fields, *Astrophys. J.*, **305**, 767–783.
- Carter, B. and Quintana, H. 1973, Neutron star moment of inertia: Theoretical implications of the observational data, *Astrophys. Lett.*, **14**, 105–109.
- Chandrasekhar, S. 1969, *Ellipsoidal figures of equilibrium*, (New Haven, Conn.: Yale Univ. Press).
- Cheng, A. F. 1985, Interstellar grains and current flow in pulsar magnetospheres, *Astrophys. J.*, **299**, 917–924.
- Cheng, A. F. and Helfand, D. J. 1983, X-rays from radio pulsars: The detection of PSR 1055–52, *Astrophys. J.*, **271**, 271–282.
- Cheng, A. F. and Ruderman, M. A. 1977a, Bunching mechanism for coherent curvature radiation in pulsar magnetospheres, *Astrophys. J.*, **212**, 800–806.
- Cheng, A. F. and Ruderman, M. A. 1977b, Pair-production discharges above pulsar polar caps, *Astrophys. J.*, **214**, 598–606.
- Cheng, A. F. and Ruderman, M. A. 1979, A theory of sub-pulse polarization patterns from radio pulsars, *Astrophys. J.*, **229**, 348–360.
- Cheng, A. F. and Ruderman, M. A. 1980, Particle acceleration and radio emission above pulsar polar caps, *Astrophys. J.*, **235**, 576–586.
- Cheng, K. S., Ho, C., and Ruderman, M. 1986a, Energetic radiation from rapidly spinning pulsars: I. Outer magnetospheric gaps, *Astrophys. J.*, **300**, 500–521.
- Cheng, K. S., Ho, C., and Ruderman, M. 1986b, Energetic radiation from rapidly spinning pulsars: II. Vela and Crab, *Astrophys. J.*, **300**, 522–539.
- Chevalier, R. A. 1984, The interaction of Crab-like supernova remnants with their surroundings, *Astrophys. J.*, **280**, 797–801.
- Chew, G., Goldberger, M., and Low, F. 1954, *Proc. Roy. Soc.*, **A236**, N1204.
- Chian, A. C. L. 1979, Nonlinear travelling longitudinal waves in cold plasmas, *Plasma Phys.*, **21**, 509.
- Chian, A. C. L. 1981, Relativistically strong coupled transverse-longitudinal waves in an electron-ion plasma, *Phys. Rev.*, **A24**, 2773.
- Chian, A. C. L. 1982, On the self-consistent solutions of pulsar plasma waves, *Astr. Astrophys.*, **112**, 391.
- Chian, A. C. L. 1989, Wavebreaking condition of space-charge waves in a relativistic electron beam, *Phys. Rev.*, **A39**, 2561.
- Chian, A. C. L. and Clemow, P. C. 1975, Nonlinear periodic waves in a cold plasma: A quantitative analysis, *J. Plasma Phys.*, **14**, 505.
- Chian, A. C. L. and Kennel, C. F. 1983, Self-modulational formation of pulsar microstructures, *Astrophys. Space Sci.*, **97**, 8–18.
- Chiu, H. Y. 1972, Pulsars—Rotating magnetic neutron stars, in *The Physics of Pulsars*, ed. A. M. Lenckek, (New York: Gordon and Breach), 135.
- Chiu, H. Y. and Canuto, V. 1971, Theory of radiation mechanisms of pulsars. I, *Astrophys. J.*, **163**, 577–594.
- Chiueh, T. 1989, Relativistic solitons and shocks in magnetized  $e^- - e^+ - p^+$  fluids, *Phys. Rev. Lett.*, **63**, 113.
- Chugunov, Y. V. and Shaposhnikov, V. E. 1988, Curvature radiation of a radio maser in a pulsar magnetosphere, *Astrophysics*, **28**, 98.

- Clark and Eardley, D. M. 1976, Evolution of close neutron star binaries, *Astrophys. J.*, **215**, 311–322.
- Cocke, W. J. 1973, Stimulated linear acceleration radiation: A pulsar radio emission mechanism, *Astrophys. J.*, **184**, 291–300.
- Cordes, J. M. 1975, Pulsar PSR 1919+21: Notches, drifting subpulses, microstructure, and other emission, *Astrophys. J.*, **195**, 193–202.
- Cordes, J. M. 1976a, Correlation analyses of microstructure and noiselike intensity fluctuations from pulsar PSR 2016+28, *Astrophys. J.*, **208**, 944–954.
- Cordes, J. M. 1976b, Pulsar radiation as polarized shot noise, *Astrophys. J.*, **210**, 780–791.
- Cordes, J. M. 1978, Observational limits on the location of pulsar emission regions, *Astrophys. J.*, **222**, 1006–1011.
- Cordes, J. M. 1979, Coherent radio emission from pulsars, *Space Sci. Rev.*, **24**, 567.
- Cordes, J. M. 1981, Radio observational constraints on pulsar emission mechanisms, in *Pulsars, 13 Years of Research on Neutron Stars, IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 115–131.
- Cordes, J. M. 1986, Space velocities of radio pulsars from interstellar scintillations, *Astrophys. J.*, **311**, 183–196.
- Cordes, J. M. 1992, Phenomenological constraints on polar-cap models, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars, IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 254–261.
- Cordes, J. M. and Downs, G. S. 1985, JPL Pulsar timing observations. III. Pulsar rotation fluctuations, *Astrophys. J. Supp. Series*, **59**, 343–382.
- Cordes, J. M. and Hankins, T. H. 1977, Pulsar polarization fluctuations at 430 MHz with microsecond time resolution, *Astrophys. J.*, **218**, 484–503.
- Cordes, J. M. and Hankins, T. H. 1979, Frequency structure of micropulses from pulsar PSR 0950+08, *Astrophys. J.*, **233**, 981–986.
- Cordes, J. M. and Helfand, D. J. 1980, Pulsar Timing III. Timing noise of 50 pulsars, *Astrophys. J.*, **239**, 640–650.
- Cordes, J. M., Pidwerbetsky, A., and Lovelace, R. V. E. 1986, Refractive and diffractive scattering in the interstellar medium, *Astrophys. J.*, **310**, 737–767.
- Cordes, J. M. and Stinebring, D. R. 1984, Multifrequency timing measurements on the millisecond pulsar PSR 1937+21, *Astrophys. J.*, **277**, L53–L56.
- Cordes, J. M., Weisberg, J. M., and Boriakoff, V. 1983, An attempt to resolve pulsar magnetospheres using interstellar scintillations, *Astrophys. J.*, **268**, 370–380.
- Cordes, J. M., Weisberg, J. M., and Hankins, T. H. 1990, Quasiperiodic microstructure in radio pulsar emissions, *Astron. J.*, **100**, 1882–1891.
- Cordes, J. M. and Wolszczan, A. 1988, Interstellar interferometry, in *Radio Wave Scattering in the Interstellar Medium, AIP Proc. No. 174*, ed. J. M. Cordes, B. J. Rickett, and D. C. Backer, (New York: AIP), 212–216.
- Cordes, J. M., Wolszczan, A., Dewey, R. J., Blaskiewicz, M., and Stinebring, D. R. 1990, Timing and scintillations of the millisecond pulsar 1937+214, *Astrophys. J.*, **349**, 245–261.
- Córdova, F. A., Hjellming, R. M., Mason, K. D., and Midleditch, J. 1989, Soft x-ray emission from the radio pulsar PSR 0656+14, *Astrophys. J.*, **345**, 451–463.
- Coroniti, F. V. 1990, Magnetically stripped relativistic MHD winds: The Crab nebula revisited, *Astrophys. J.*, **349**, 538–545.
- Coté, J. and Pylyser, E. H. P. 1989, On the birthrates of galactic low-mass binary radio pulsars and their possible progenitor systems, *Astr. Astrophys.*, **218**, 131.
- Cox, Jr., J. L. 1979, Coherent radiation from pulsars, *Astrophys. J.*, **229**, 734–741.
- Cox, Jr., J. L. 1980, *Theory of Stellar Pulsation*, (Princeton: Princeton University Press).
- Craft, Jr., H. D. 1970, Radio observations of the pulse profiles and dispersion measures of twelve pulsars. PhD thesis, Cornell University.
- Craft, Jr., H. D., Comella, J. M., and Drake, F. D. 1968, Submillisecond radio intensity variations in pulsars, *Nature*, **218**, 1122.
- da Costa, A. A. and Kahn, F. D. 1985, Pulsar electrodynamics: The back reaction of the motion of charged particles, *Mon. Not. R. astr. Soc.*, **215**, 701.
- Damour, T. and Ruffini, R. 1974, *Comptes Rendus*, **279A**, 971.
- Daugherty, J. K. and Harding, A. K. 1982, Electromagnetic cascades in pulsars, *Astrophys. J.*, **252**, 337–347.
- Daugherty, J. K. and Harding, A. K. 1986, Compton Scattering in strong magnetic fields, *Astrophys. J.*, **309**, 362–371.
- Daugherty, J. K. and Harding, A. K. 1989, Comptonization of thermal photons by relativistic electron beams, *Astrophys. J.*, **336**, 861–874.
- Davidson, K. and Fesen, R. A. 1985, Recent developments concerning the Crab nebula, *Ann. Rev. Astr. Ap.*, **23**, 119–146.
- Davies, J. G., Lyne, A. G., Graham-Smith, F., Izvekova, V. A., Kuz'min, A. D., and Shitov, Y. P. 1984, The magnetic field structure of PSR 0809+74, *Mon. Not. R. astr. Soc.*, **211**, 57.
- Davies, J. G., Lyne, A. G., and Seiradakis, J. H. 1977, The galactic distribution of pulsars, *Mon. Not. R. astr. Soc.*, **179**, 635–650.
- Davis, L. and Goldstein, M. 1970, Magnetic-dipole alignment in pulsars, *Astrophys. J.*, **159**, L81–L85.
- de Jager, O. C. 1990. Preprint on AE Aqu.
- de Kool, M. and van Paradijs, J. 1986, Neutron star spin evolution in wide low-mass x-ray binaries, *Astr. Astrophys.*, **173**, 279–283.
- Deich, W. T. S., Cordes, J. M., Hankins, T. H., and Rankin, J. M. 1986, Null transition times, quantised drift modes, and no memory across nulls for PSR 1944+17, *Astrophys. J.*, **300**, 540–550.
- Deng, Z. G., Huang, J. H., and Xia, X. Y. 1987, The evolution of two types of pulsars, *Ap. Sp. Sci.*, **129**, 503.
- Dermer, C. D. 1990, Compton scattering in strong magnetic fields and the continuum spectra of gamma ray bursts: Basic theory, *Astrophys. J.*, **360**, 197–214.
- Deshpande, A. A. 1987. PhD thesis, Indian Institute of Technology, Bombay.
- Deshpande, A. A. 1990. in preparation.
- Deshpande, A. A., Shevgaonkar, R. K., and Sastry, C. V. 1989, *Journal of IETE*, **35**, 342.
- Deutsch, A. J. 1955, The electromagnetic field of an idealized star in rigid rotation in vacuo, *Ann. Astrophys.*, **18**, 1.
- Downs, G. S. 1979, Integrated pulse profiles and mean fluxes of 24 pulsars at 2.388 gigahertz, *Astrophys. J. Supp. Series*, **40**, 365–369.
- Downs, G. S. and Reichley, P. E. 1983, JPL pulsar timing observations. II. Geocentric arrival times., *Astrophys. J. Supp. Series*, **53**, 169–240.

- Drake, F. D. and Craft, H. D. 1968, Second periodic pulsations in pulsars, *Nature*, **220**, 231–235.
- Durdin, J. M., Large, M. I., Little, A. G., Manchester, R. N., Lyne, A. G., and Taylor, J. H. 1979, An unusual pulsar—PSR0826–34, *Mon. Not. R. astr. Soc.*, **186**, 39P–41P.
- Egorenko, V. D., Lominadze, D. G., and Mamradze, P. G. 1983, Beam instability of the plasma in pulsar magnetospheres, *Astrophysics*, **19**, 426.
- Eidman, V. Y. 1971, On the radiation of electromagnetic waves by relativistic clusters of charged particles, *Astrofizika*, **7**, 135.
- Elitzur, M. 1982, Physical characteristics of astronomical masers, *Reviews of Modern Physics*, **54**, 1225.
- Ellison, D. E., Jones, F. C., and Reynolds, S. P. 1990, First-order Fermi particle acceleration by relativistic shocks, *Astrophys. J.*, **360**(2), 702–714.
- Elsasser, K. and Kirk, J. 1976, Pulsar signals from relativistic electron beams, *Astr. Astrophys.*, **52**, 449.
- Emmering, R. T. and Chevalier, R. A. 1987, Shocked relativistic magnetohydrodynamic flows with application to pulsar winds, *Astrophys. J.*, **321**, 334–348.
- Emmering, R. T. and Chevalier, R. A. 1989, The intrinsic luminosity and initial period of pulsars, *Astrophys. J.*, **345**, 931–938.
- Epstein, R. I. 1985, Feeding a gamma-ray burster, *Astrophys. J.*, **291**, 822–833.
- Erickson, W. C. and Mahoney, M. J. 1985, The radio continuum spectrum of PSR 1937+214, *Astrophys. J.*, **299**, L29–L31.
- Erickson, W. C., Mahoney, M. J., Becker, R. H., and Helfand, D. J. 1987, VLA observations of the fast pulsar candidate in M28, *Astrophys. J.*, **314**, L45–L47.
- Ertl, T. 1988, Selbstkonsistente Behandlung von Pulsarmagnetosphären. PhD thesis, Universität Tübingen.
- Ertl, T., Herold, H., Finkbeiner, B., and Ruder, H. 1987, Self-consistent modelling of pulsar magnetospheres, *Mitt. Astron. Ges.*, **70**, 372.
- Esposito, L. W. and Harrison, E. R. 1975, Properties of the Hulse-Taylor binary pulsar system, *Astrophys. J.*, **196**, L1–L2.
- Ewing, M. S., Batchelor, R. A., Friedfeld, R. D., Price, R. M., and Staelin, D. H. 1970, Observations of pulsar spectra, *Astrophys. J.*, **162**, L169–L172.
- Fawley, W. M. 1978, Particle acceleration, gamma-ray emission and sparking in pulsars. PhD thesis, University of California at Berkeley.
- Fawley, W. M., Arons, J., and Scharlemann, E. T. 1977, Potential drops above pulsar polar caps: Acceleration of nonneutral beams from the stellar surface, *Astrophys. J.*, **217**, 227–243.
- Ferguson, D. C. 1981, Pulse emission from the light cylinder, in *Pulsars, 13 Years of Research on Neutron Stars*, IAU Symposium No. 95, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 141–152.
- Ferguson, D. C. and Boriakoff, V. 1980, Short time scale integrated pulse shape variations in PSR0611+22, *Astrophys. J.*, **239**, 310–315.
- Ferguson, D. C., Boriakoff, V., Weisberg, J. M., Backus, P. R., and Cordes, J. M. 1981, Discovery of mode switching in PSR1926+18, *Astr. Astrophys.*, **94**, L6–L8.
- Ferguson, D. C. and Seiradakis, J. H. 1978, A detailed, high time resolution study of high frequency radio emission from PSR1133+16, *Astr. Astrophys.*, **64**, 27.
- Fesen, C. 1990. personal communication.
- Filippenko, A. V. and Radhakrishnan, V. 1982, Pulsar nulling and drifting subpulse phase memory, *Astrophys. J.*, **263**, 828–834.
- Finkbeiner, B., Herold, H., Ertl, T., and Ruder, H. 1989, Effects of radiation damping on particle motion in pulsar vacuum fields, *Astr. Astrophys.*, **225**, 479.
- Fisher, R. J. 12 June 1982. NRAO Internal Memo.
- Fitzpatrick, R. 1988. PhD thesis, University of Sussex.
- Fitzpatrick, R. and Mestel, L. 1988a, Pulsar electrodynamics—I, *Mon. Not. R. astr. Soc.*, **232**, 277–302.
- Fitzpatrick, R. and Mestel, L. 1988b, Pulsar electrodynamics—II, *Mon. Not. R. astr. Soc.*, **232**, 303–321.
- Flanagan, C. 1989. IAU circular 4695.
- Flowers, E. and Itoh, N. 1976, Transport properties of dense matter, *Astrophys. J.*, **206**–242, 218.
- Flowers, E. and Ruderman, M. A. 1977, Evolution of pulsar magnetic fields, *Astrophys. J.*, **215**, 302–310.
- Flowers, E. G., Lee, J. F., Ruderman, M. A., Sutherland, P. G., Hillebrandt, W., and Müller, W. 1977, Variational calculation of ground-state energy of condensed matter: Iron atoms in strong magnetic fields, *Astrophys. J.*, **215**, 291–301.
- Foster, R. S. and Backer, D. C. 1990, Constructing a pulsar timing array, *Astrophys. J.*, **361**, 300–308.
- Foster, R. S. and Cordes, J. M. 1990, Interstellar propagation effects and the precision of pulsar timing, *Astrophys. J.*, **364**, 123–135.
- Fowler, L. A., Wright, G. A. E., and Morris, D. 1981, Unusual properties of the pulsar PSR 1822–09, *Astr. Astrophys.*, **93**, 54–61.
- Fracassini, M., Pasinetti, L. E., and Rafaelli, G. 1986, Discriminant analysis of pulsar groups in the diagram  $P$  vs.  $\dot{P}$ , in *Proc. of the Joint Varenna-Abastumani School and Workshop on Plasma Astrophys.*, ESA SP-285, (Noordwijk: ESA Publications Division), 315.
- Fruchter, A. S. et al. 1990, The eclipsing millisecond pulsar PSR 1957+20, *Astrophys. J.*, **351**, 642–650.
- Fruchter, A. S., Stinebring, D. R., and Taylor, J. H. 1988, A millisecond pulsar in an eclipsing binary, *Nature*, **333**, 237–239.
- Gallant, Y. A., Hoshino, M., Langdon, A. B., Arons, J., and Max, C. E. 1990, Structure of relativistic magnetosonic shocks in electron-positron plasmas, *Astrophys. J.*, to be submitted.
- Gedalin, M. E. and Machabeli, G. Z. 1983, Oblique waves propagating in a relativistic electron-positron plasma, *Astrophysics*, **19**, 91.
- Ghosh, P. and Lamb, F. K. 1979, Accretion by rotating magnetic neutron stars: III. accretion torques and period changes in pulsating x-ray sources, *Astrophys. J.*, **234**, 296–316.
- Gil, J. A. 1981, The frequency dependence of micropulse separation, *Astr. Astrophys.*, **104**, 69–71.
- Gil, J. A. 1983, Lorentz factor of particles emitting in pulsars, *Astr. Astrophys.*, **123**, 7.
- Gil, J. A. 1984, A new aspect of the hollow-cone model of pulsar emission, *Astr. Astrophys.*, **131**, 67–71.
- Gil, J. A. 1985, Interpulse beams and profile components, *Astrophys. J.*, **299**, 154–160.
- Gil, J. A. 1986, Triplicity of pulsar profiles and orthogonal polarisation modes, *Astrophys. J.*, **309**, 609–618.
- Gil, J. A. 1992, Curvature radiation and polarized emission from PSR 2303+30, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 395–400.

- Gil, J. A., Hankins, T. H., Stinebring, D. R., and Snakowski, J. K. 1992, The geometry of PSR 0525+21, *Astrophys. J.*, submitted.
- Gil, J. A. and Snakowski, J. K. 1990a, Curvature radiation and the core emission of pulsars, *Astr. Astrophys.*, **234**, 237–242.
- Gil, J. A. and Snakowski, J. K. 1990b, Pulsar emission as curvature-generated polarized shot noise, *Astr. Astrophys.*, **234**, 269–272.
- Ginzburg, V. L. 1982, *Astrofizika kosmicheskikh luchej*, (Moscow: Nauka Press).
- Ginzburg, V. L. and Zheleznyakov, V. V. 1975, On the pulsar emission mechanisms, *Ann. Rev. Astr. Ap.*, **13**, 511–535.
- Glendenning, N. K. 1985, Neutron stars are giant hypernuclei?, *Astrophys. J.*, **293**, 470–493.
- Gold, T. 1969, Rotating neutron stars and the nature of pulsars, *Nature*, **221**, 25.
- Gold, T. 1978, in *Ninth Texas Symp. on Relativistic Astrophysics*, ed. J. Ehlers, J. J. Perry, and M. Walker, volume 336, *Ann. N. Y. Acad. Sci.*, 448.
- Goldreich, P. 1970, Neutron star crust and the alignment of magnetic axes in pulsars, *Astrophys. J.*, **160**, L11–L15.
- Goldreich, P. and Julian, W. H. 1969, Pulsar electrodynamics, *Astrophys. J.*, **157**, 869–880.
- Goldreich, P. and Julian, W. H. 1970, Stellar winds, *Astrophys. J.*, **160**, 971–977.
- Goldreich, P. and Keeley, D. A. 1971, Coherent synchrotron radiation, *Astrophys. J.*, **170**, 463–477.
- Goldstein, S. J. and James, J. T. 1969, Accurate dispersions for thirteen pulsars, *Astrophys. J.*, **158**, L179–L182.
- Good, M. L. and Ng, K. K. 1970, Electromagnetic torques, secular alignment and spin-down of neutron stars, *Astrophys. Lett.*, **299**, 86.
- Gould, D. M. and Lyne, A. G. 1990, in press.
- Gower, J. F. R. and Argyle, E. 1972, Detection of strong interpulses from NP 0532, *Astrophys. J.*, **171**, L23–L26.
- Grassberger, P. and Procaccia, I. 1983a, *Physica*, **9D**, 189.
- Grassberger, P. and Procaccia, I. 1983b, Characterization of strange attractors, *Phys. Rev. Lett.*, **50**, 346.
- Gross, M. and Haroche, S. 1982, Superradiance: An essay on theory of collective spontaneous emission, *Phys. Rep.*, **93**, 301.
- Groth, E. J. 1975, Timing of the Crab pulsar III. The slowing down and the nature of the random process, *Astrophys. J. Supp. Series*, **29**, 453–465.
- Gunn, J. E. and Ostriker, J. P. 1970, On the nature of pulsars: III. Analysis of observations., *Astrophys. J.*, **160**, 979–1002.
- Gunn, J. E. and Ostriker, J. P. 1971, On the motion and radiation of charged particles in strong electromagnetic waves: I. Motion in plane and spherical waves, *Astrophys. J.*, **165**, 523–541.
- Gurevich, A. V. and Istomin, Y. N. 1985, Production of an electron-positron plasma in a pulsar magnetosphere, *Soviet Phys. JETP*, **62**, 1–11.
- Gurevich, A. V. and Levin, B. Y. 1950, *Astron. Zh.*, **27**, 273.
- Guseĭnov, O. H. and Yusifov, I. M. 1985a, *Astron. Zh.*, **62**, 240.
- Guseĭnov, O. H. and Yusifov, I. M. 1985b, Pulsar beam orientation, *Sov. Astron.*, **29**, 136–143.
- Guseĭnov, O. H. and Yusifov, I. M. 1991, On the shape of the pulsar emission pattern, *Astron. Zh.*, **68**, 529–537.
- Haensel, P., Kutschera, M., and Prószyński, M. 1981, Uncertainty in the saturation density of nuclear matter and neutron star models, *Astr. Astrophys.*, **102**, 299–302.
- Haensel, P. and Prószyński, M. 1982, Pion concentration in cold dense matter and neutron stars, *Astrophys. J.*, **258**, 306–320.
- Haensel, P., Zdunik, J. L., and Schaeffer, R. 1986, Strange quark stars, *Astr. Astrophys.*, **160**, 121–128.
- Hamilton, P. A., Hall, P. J., and Costa, M. E. 1985, Changing parameters along the path to the Vela pulsar, *Mon. Not. R. astr. Soc.*, **214**, 5P–8P.
- Hamilton, P. A., King, E. A., McConnell, D., and McCulloch, P. M. 1989, IAU circular 4708.
- Hamilton, P. A., McCulloch, P. M., Ables, J. G., and Komesaroff, M. M. 1977a, Polarization characteristics of southern pulsars – I. 400-MHz observations, *Mon. Not. R. astr. Soc.*, **180**, 1–18.
- Hamilton, P. A., McCulloch, P. M., Manchester, R. N., Ables, J. G., and Komesaroff, M. M. 1977b, *Nature*, **265**, 224.
- Hankins, T. H. 1971, Microsecond intensity variation in the radio emission from CP 0950, *Astrophys. J.*, **169**, 487–494.
- Hankins, T. H. 1972, Short-time scale structure in two pulsars, *Astrophys. J.*, **177**, L11–L15.
- Hankins, T. H. 1990, private communication.
- Hankins, T. H. and Boriakoff, V. 1978, Submicrosecond time resolution observations of PSR 0950+08, *Nature*, **276**, 45–47.
- Hankins, T. H. and Boriakoff, V. 1981, Microstructure in the pulsar PSR 0950+08, *Astrophys. J.*, **249**, 238–240.
- Hankins, T. H. and Cordes, J. M. 1981, Interpulse emission from pulsar 0950+08: How many poles?, *Astrophys. J.*, **249**, 241–253.
- Hankins, T. H. and Fowler, L. A. 1982, Wide emission shoulders of radio pulsar profiles, *Bull. American Astron. Soc.*, **14**, 968.
- Hankins, T. H. and Rickett, B. J. 1986, Frequency dependence of pulsar profiles, *Astrophys. J.*, **311**, 684–693.
- Hankins, T. H. and Wolszczan, A. 1987, The drifting sub-pulse phenomenon observed in three pulsars with triple profiles, *Astrophys. J.*, **318**, 410–420.
- Hardee, P. E. and Morrison, P. 1979, Plasma collective effects and pulsar emission models, *Astrophys. J.*, **227**, 252–265.
- Hardee, P. E. and Rose, W. K. 1976, A mechanism for the production of pulsar radio radiation, *Astrophys. J.*, **210**, 533–538.
- Hardee, P. E. and Rose, W. K. 1978, Wave production in an ultrarelativistic electron-positron plasma, *Astrophys. J.*, **219**, 274–287.
- Harding, A. K., Shinbrot, T., and Cordes, J. M. 1989, A chaotic attractor in the timing noise from the Vela pulsar, *Bull. American Astron. Soc.*, **21**, 1205.
- Harnden, Jr., F. R., Grant, P. D., Seward, F. D., and Kahn, S. M. 1985, EINSTEIN observations of Vela X and Vela pulsar, *Astrophys. J.*, **299**, 828–838.
- Harnden, Jr., F. R. and Seward, F. D. 1984, EINSTEIN observations of the Crab nebula pulsar, *Astrophys. J.*, **283**, 279–285.
- Hartle, J. B. 1978, *Phys. Rep.*, **46**, 201.
- Harwit, M. and Salpeter, E. E. 1973, Radiation from comets near neutron stars, *Astrophys. J.*, **186**, L37–L39.
- Hasegawa, A. 1975, *Plasma Instabilities and Nonlinear Effects*, (Berlin: Springer-Verlag).
- He, Z. X., Qing, C. R., Qiao, G. J., and Wang, Y. R. 1990, An induced collapse model of SN1987A, preprint.

- Heiles, C., Campbell, D. B., and Rankin, J. M. 1970, Pulsar NP 0532: Properties and systematic polarization of individual strong pulses at 430 MHz, *Nature*, **226**, 529–531.
- Heiles, C. E., Kulkarni, S. R., Stevens, M. A., Backer, D. C., Goss, W. M., and Davis, M. M. 1983, Distance to the 1.5 ms pulsar and other 4c21.53 objects, *Astrophys. J.*, **273**, L75–L79.
- Heiles, C. E. and Rankin, J. M. 1971, Frequency structure in individual strong pulses of NP 0532, *Nature Phys. Sci.*, **231**, 97–99.
- Helfand, D. J. 1983, X-rays from radio pulsars: The portable supernova remnants, in *IAU Symp. 101, Supernova Remnants and their X-ray Emission*, ed. P. Gorenstein and J. Danziger, (Dordrecht: D. Reidel), 471.
- Helfand, D. J. 1984, X-ray synchrotron nebulae and the origin of neutron stars, *Adv. Space Res.*, **3**, 29.
- Helfand, D. J., Manchester, R. N., and Taylor, J. H. 1975, Observations of pulsar radio emission: III. Stability of integrated profiles., *Astrophys. J.*, **198**, 661–670.
- Helfand, D. J. and Tademaru, E. 1977, Pulsar velocity observations: Correlations, interpretations and discussion, *Astrophys. J.*, **216**, 842–851.
- Helfand, D. J., Taylor, J. H., Backus, P. R., and Cordes, J. M. 1980, Pulsar timing: I. Observations from 1970 to 1978, *Astrophys. J.*, **237**, 206–215.
- Hernquist, L. and Applegate, J. H. 1984, Analytical models of neutron star envelopes, *Astrophys. J.*, **287**, 244–254.
- Herold, H. 1979, Compton and Thompson scattering in strong magnetic fields, *Phys. Rev.*, **D 19**, 2868.
- Herold, H., Ertl, T., Finkbeiner, B., and Ruder, H. 1989, Self-consistent modelling of pulsar magnetospheres, in *Timing Neutron Stars*, ed. H. Ögelman and E. P. J. van den Heuvel, (Dordrecht: Kluwer), 723.
- Herold, H., Ertl, T., and Ruder, H. 1985, Generation of relativistic particles in pulsar magnetospheres, *Mitt. Astron. Ges.*, **63**, 174.
- Herold, H., Ertl, T., and Ruder, H. 1986, Towards a self-consistent modelling of pulsar magnetospheres, in *Proc. of the 8th EPS Conference on Computational Physics — Computing in Plasma Physics*, volume 10D, Europhysics Conference Abstracts, 3.
- Hewish, A. 1981, Introductory review, in *Pulsars, 13 Years of Research on Neutron Stars*, *IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 1–6.
- Heygi, D., Novick, R., and Thaddeus, P. 1971, A search for variations in the intensity of the optical pulses from NP 0532, in *The Crab Nebula, IAU Symp. No. 46*, ed. R. D. Davies and F. G. Smith, (Dordrecht: D. Reidel).
- Hinata, S. 1976a, Level of electrostatic excitation associated with the relativistic beam-plasma system and pulsar radiation, *Astrophys. Space Sci.*, **44**, 389.
- Hinata, S. 1976b, Relativistic plasma turbulence and its application to pulsar phenomena, *Astrophys. J.*, **206**, 282–294.
- Hinata, S. 1976c, Stability of a beam-plasma system against the excitation of the longitudinal mode around pulsars, *Astrophys. J.*, **203**, 223–225.
- Holloway, N. J. 1973, p-n junctions in pulsar magnetospheres, *Nature*, **246**, 6.
- Holloway, N. J. 1977, Angular momentum and energy loss from pulsars, *Mon. Not. R. astr. Soc.*, **181**, 9P.
- Horn, S. and Kundt, W. 1989, Magnetically tilted accretion disks, *Astrophys. Space Sci.*, **158**, 205–221.
- Hoshino, M. and Arons, J. 1990, Differential heating and acceleration of positrons by synchrotron maser instabilities, *Phys. Fluids*, submitted.
- Hoshino, M., Arons, J., Langdon, A. B., Gallant, Y. A., and Max, C. E. 1990, Differential heating and acceleration of positrons in electron-positron-proton relativistic magnetosonic shocks, *Astrophys. J.*, submitted.
- Huguenin, G. R., Manchester, R. N., and Taylor, J. H. 1971, Properties of pulsars, *Astrophys. J.*, **169**, 97.
- Huguenin, G. R., Taylor, J. H., and Troland, T. H. 1970, The radio emission from pulsar MP 0031–07, *Astrophys. J.*, **162**, 727–735.
- Hunt, G. C. 1971, The rate of change of period of the pulsars, *Mon. Not. R. astr. Soc.*, **153**, 119–131.
- Imre, K. 1962, Oscillations in a relativistic plasma, *Phys. Fluids*, **5(4)**, 459–466.
- Isobe, T., Feigelson, E. D., and Nelson, P. I. 1986, Statistical methods for astronomical data with upper limits: II. Correlation and regression, *Astrophys. J.*, **306**, 490–507.
- Istomin, Y. N. 1988, Nonlinear interaction of waves in an inhomogeneous plasma, *Soviet Phys. JETP*, **67**, 1380.
- Izvekova, V. A., Kuz'min, A. D., Malofeev, V. M., Jessner, A., Sieber, W., and Wielebinski, R. 1990, New evidence of multipole magnetic field structure of pulsars, *Astr. Astrophys.* in preparation.
- Izvekova, V. A., Kuz'min, A. D., Malofeev, V. M., and Shitov, Y. P. 1979, Radio flux density and pulse profiles of pulsars at 102.5 and 61 MHz, *Sov. Astron.*, **23**, 179–188.
- Izvekova, V. A., Kuz'min, A. D., Malofeev, V. M., and Shitov, Y. P. 1981, Radio spectra of pulsars I. Observations of flux densities at meter wavelengths and analysis of the spectra, *Astrophys. Space Sci.*, **78**, 45–72.
- Izvekova, V. A., Kuz'min, A. D., Malofeev, V. M., and Shitov, Y. P. 1989, Frequency variations of the form and time alignment of the pulsars mean profiles, *J. Lebedev Physical Inst.*, **199**, 13.
- Izvekova, V. A., Kuz'min, A. D., and Shitov, Y. P. 1982, Detection of the regular “abnormally” directed drift of subpulses of the pulsar PSR 0320+39, *Sov. Astron.*, **26**, 324–327.
- Izvekova, V. A., Malov, I. F., and Malofeev, V. M. 1977, On the applicability of the hollow-cone beam model to pulsars, *Pis'ma Astron. Zh.*, **3**, 442–445. (in Russian).
- Jackson, E. A. 1976, A new pulsar atmospheric model: Aligned magnetic and rotational axes, *Astrophys. J.*, **206**, 831.
- Jackson, E. A. 1980, Finite force-free pulsar atmosphere models, *Astrophys. J.*, **237**, 198–205.
- Jackson, J. D. 1962, *Classical Electrodynamics*, (New York: Wiley).
- Javakhishvili, J. I. and Tsintsadze, N. L. 1973, Transport phenomena in a completely ionized ultra relativistic plasma, *Soviet Phys. JETP*, **37**, 666–671.
- Jones, P. B. 1977, Pulsar magnetic alignment: a classification of pulsars, *Mon. Not. R. astr. Soc.*, **178**, 87P–91P.
- Jones, P. B. 1978, Particle acceleration at the magnetic poles of a neutron star, *Mon. Not. R. astr. Soc.*, **184**, 807–823.
- Jones, P. B. 1979, Pair production on the pulsar magnetosphere, *Astrophys. J.*, **228**, 536–540.
- Jones, P. B. 1980a, The elliptical cross section and linear polarization of pulsar radio beams, *Astrophys. J.*, **236**, 661–663.
- Jones, P. B. 1980b, Source of coherent radio emission in pulsars, *Astrophys. J.*, **237**, 590.



- Jones, P. B. 1981, A model of the normal and null states of pulsars, *Mon. Not. R. astr. Soc.*, **197**, 1103–1124.
- Jones, P. B. 1986, Density functional calculations of the cohesive energy of condensed matter in very strong magnetic fields, *Mon. Not. R. astr. Soc.*, **218**, 477.
- Jones, P. B. 1987, Neutron star magnetic field decay: Flux expulsion from the superconducting interior, *Mon. Not. R. astr. Soc.*, **228**, 513.
- Jones, P. B. 1988, Neutron star magnetic field decay: Hall drift and ohmic diffusion, *Mon. Not. R. astr. Soc.*, **233**, 875–885.
- Julian, W. H. 1973, Pulsar electrodynamics II, *Astrophys. J.*, **183**, 967.
- Kadomtzev, V. V. 1988, *Kollektivnye yavleniya v plazme*, (Moscow: Nauka Press).
- Kahn, F. D. and Lerche, I. 1965, Radiation from cosmic ray air showers, *Proc. Roy. Soc. Lond A*, **289**, 206.
- Kaplan, S. A. 1968, On the theory of coherent synchrotron radiation from cosmic radio sources, *Astrophysics*, **2**, 221.
- Kaplan, S. A. and Tsytovich, V. N. 1973, *Plasma Astrophysics*, (London: Pergamon Press).
- Kapoor, R. C. and Datta, B. 1985, Fast pulsars: Effects of spacetime curvature and rotation on the pulse characteristics, *Astrophys. J.*, **297**, 413.
- Kardeshev, N. S. *et al.* 1978, Pulsar observations with a time resolution of 10 microseconds at 102.5 MHz, *Sov. Astron.*, **22**, 583–587.
- Kardeshev, N. S. *et al.* 1982, PSR 1133+16: Determination of the dispersion measure and the location of the emitting regions, *Astr. Astrophys.*, **109**, 340–343.
- Kardeshev, N. S. *et al.* 1986, Simultaneous single-pulse observations of radio pulsars over a broad frequency range ii. Correlation between intensities of single pulses at 102.5 and 1700 MHz, *Astr. Astrophys.*, **163**, 114.
- Karpman, V. I. and Maslov, E. M. 1977, Perturbation theory for solitons, *Soviet Phys. JETP*, **46**, 281.
- Kawasura, K. and Suzuki, I. 1977, A model of the radio emission mechanism in pulsars, *Astrophys. J.*, **217**, 832.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1987a, Influence of inhomogeneity of the magnetic field on excitation of longitudinal waves in pulsar magnetospheres, *Astrophysics*, **25**, 425.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1987b, Radio emission of a 'typical' pulsar, *Aust. J. Phys.*, **40**, 755–766.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1989, in *Proc. of the Joint Varenna-Abastumani School and Workshop on Plasma Astrophysics*, ESA SP-285, volume 1, (Noordwijk: ESA Publications Division), 277.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1992a, A mechanism of circular polarization in pulsar radiation, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars. IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 374–375.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1992b, A model for the drifting subpulse phenomenon, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars. IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 297–299.
- Kazbegi, A. Z., Machabeli, G. Z., and Melikidze, G. I. 1992c, On a possible mechanism of pulsar radiation, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars. IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 233–236.
- Kazbegi, A. Z., Machabeli, G. Z., Melikidze, G. I., and Usov, V. V. 1988, On the nature of a 'typical' pulsar radio emission, in *Proc. of the Joint Varenna-Abastumani School and Workshop on Plasma Astrophysics*, ESA SP-285, volume 1, 271.
- Kennel, C. F. and Coroniti, F. V. 1984a, Confinement of the Crab pulsar's wind by its supernova remnant, *Astrophys. J.*, **283**, 694.
- Kennel, C. F. and Coroniti, F. V. 1984b, Magnetohydrodynamic model of Crab nebula radiation, *Astrophys. J.*, **283**, 710.
- Kennel, C. F., Fugimura, F., and Okamoto, I. 1983, Relativistic magnetohydrodynamic winds of finite temperature, *Geophys. and Astrophys. Fluid Dyn.*, **26**, 147.
- Kennel, C. F. and Pellat, R. 1976, Relativistic nonlinear waves in a magnetic field, *J. Plasma Phys.*, **15**, 335.
- Kirk, J. G. 1980, Coherent curvature radiation, *Astr. Astrophys.*, **82**, 262.
- Kluźniak, W., Ruderman, M., Shaham, J., and Tavani, M. 1988, Nature and evolution of the eclipsing millisecond binary pulsar PSR 1957+20, *Nature*, **334**, 225–227.
- Knight, F. K., Matteson, J. L., Peterson, L. E., and Rothschild, R. E. 1982, X-ray and gamma-ray upper limits for pulsed emission from radio pulsars, *Astrophys. J.*, **260**, 553.
- Kocharovskii, V. V. and Kocharovskii, V. V. 1990, Phenomenological quantum electrodynamics of active media and superradiance, in *Nonlinear waves*, ed. A. V. Gaponov-Grehkov and M. I. Rabinovich, (Berlin: Springer-Verlag).
- Kolosov, D. E., Lipunov, V. M., Postnov, K. A., and Prokhorov, M. E. 1989, *Astr. Astrophys.*, **215**, L21.
- Komesaroff, M. M. 1970, Possible mechanism for the pulsar radio emission, *Nature*, **225**, 612.
- Kössl, D., Wolff, R. G., Miller, E., and Hillerbrandt, W. 1988, Density functional calculations in strong magnetic fields: The ground state properties of atoms, *Astr. Astrophys.*, **205**, 347–353.
- Kovalev, Y. A. 1979, A possible radio emission mechanism for pulsars, *Astrophys. Space Sci.*, **63**, 3–17.
- Kovalev, Y. A. 1980, Crab pulsar: Magnetized cracks in the crust as a key to mechanisms of the matter flow, radio and high-frequency emission, *Astrophys. Space Sci.*, **67**, 387.
- Koyama, K. 1988, X-ray observations with the Ginga satellite, *Comm. Astrophys.*, **12**, 287.
- Krausse-Pohlstorff, J. and Michel, F. C. 1985a, Electrosphere of an aligned magnetized neutron star, *Mon. Not. R. astr. Soc.*, **213**, 43P.
- Krausse-Pohlstorff, J. and Michel, F. C. 1985b, Pulsar space charging, *Astr. Astrophys.*, **144**, 72.
- Krishnamohan, S. and Downs, G. S. 1983, Intensity dependence of the pulse profile and polarization of the Vela pulsar, *Astrophys. J.*, **265**, 372.
- Krishnan, V. and Sivaram, C. 1983, Radio emission by parallel acceleration emission mechanism, *Solar Phys.*, **84**, 125.
- Kröll, N. M. and McMullin, W. A. 1979, Stimulated linear acceleration bremsstrahlung, *Astrophys. J.*, **231**, 425.
- Kulkarni, S. R. 1986, Optical identification of binary pulsars: Implications for magnetic field decay in neutron stars, *Astrophys. J.*, **306**, L85–L89.

- Kulkarni, S. R. 1990, in *Neutron stars and their birth events*, NATO ASI C, ed. W. Kundt, volume 300, (Dordrecht: Kluwer), 59.
- Kulkarni, S. R. and Hester, J. J. 1988, Discovery of a nebula around PSR 1957+20, *Nature*, **335**, 801–803.
- Kulkarni, S. R. and Narayan, R. 1988, Birthrates of low-mass binary pulsars and low-mass X-ray binaries, *Astrophys. J.*, **335**, 755–768.
- Kundt, W. 1981, Do neutron star magnetic fields decay?, *Astr. Astrophys.*, **98**, 207–210.
- Kundt, W. 1985, What do we know about pulsars?, *Bull. Astron. Soc. India*, **13**, 12–52.
- Kundt, W. 1988, Do pulsar magnetic fields decay?, *Comm. Astrophys.*, **12**, 113.
- Kundt, W. 1990a, Known and expected sources of low-frequency radiation, in *Low-Frequency Astrophysics from Space*, *Lecture Notes in Physics*, ed. K. Weiler and N. Kassim, (New York: Springer-Verlag Lecture Notes in Physics Series), 239–251.
- Kundt, W. 1990b, Observed neutron star properties, in *Neutron Stars and Their Birth Events*, ed. W. Kundt, volume 300, (Dordrecht: Kluwer Academic Publishers), 1–21.
- Kundt, W. and Krotscheck, E. 1980, The Crab nebula—a model, *Astr. Astrophys.*, **83**, 1–21.
- Kundt, W., Özel, M., and Erçan, E. N. 1987, *Astr. Astrophys.*, **177**, 163.
- Kuo-Petravic, L. G., Petravic, M., and Roberts, R. W. 1974, Self-consistent solution for an axisymmetric pulsar model, *Phys. Rev. Lett.*, **32**, 1019.
- Kuz'min, A. D. 1985a. Preprint No. 210 (in Russian). Technical report, Lebedev Physical Institute, USSR Academy of Sciences, Moscow.
- Kuz'min, A. D. 1986, Frequency dependence of the dispersion measure and the extra dispersion time delay of the pulses for radio pulsars, *Sov. Astron. Lett.*, **12**, 778.
- Kuz'min, A. D. 1989a, Influence of the scattering in interstellar medium on observed profile of the pulsars, *FIAN Transactions*, **199**, 147.
- Kuz'min, A. D., Alekseev, Y. A., Lapaev, K. A., Losovsky, B. Y., and Salnikov, A. A. 1990, Observations of the millisecond pulsar PSR1855+09 at 102 MHz, *Sov. Astron. Lett.*, **16**, 208.
- Kuz'min, A. D. and Dagkesamanskaya, I. M. 1983, Evaluations of the angle of magnetic axis and spin axis of 308 pulsars, *Sov. Astron. Lett.*, **9**, 80.
- Kuz'min, A. D., Dagkesamanskaya, I. M., and Pugachev, V. D. 1984, The evolving orientation of the magnetic axis of pulsars, *Sov. Astron. Lett.*, **10**, 357.
- Kuz'min, A. D., Izvekova, V. A., Malofeev, V. M., and Shitov, Y. P. 1988, The scattering of pulse radioemission at 102 MHz. The difference from the dependence, *Pis'ma Astron. Zh.*, **14**, 140–144.
- Kuz'min, A. D., Malofeev, V. M., Izvekova, V. A., Sieber, W., and Wielebinski, R. 1986, A comparison of high-frequency and low-frequency characteristics of pulsars, *Astr. Astrophys.*, **161**, 183–194.
- Kuz'min, O. A. 1985b, Periodic microstructure in the pulses of PSR 1133+16 from synchronous observations at three meter wavelengths, *Sov. Astron.*, **29**, 133–136.
- Kuz'min, O. A. 1989b. PhD thesis.
- Kuz'min, O. A. 1992, Resolution of the PSR 1919+21 magnetosphere emitting region, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, *IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 288–290.
- Lakhina, G. S. and Buti, B. 1981, Generation of a DC field by nonlinear electromagnetic waves in relativistic plasmas, *Astrophys. Space Sci.*, **79**, 25.
- Landau, L. D. and Lifshitz, E. M. 1962, *Teoriya polya*, (Moscow: Nauka Press).
- Landau, L. D. and Lifshitz, E. M. 1967, *Field Theory (in Russian)*, (Moscow: Nauka Press).
- Landau, L. D. and Lifshitz, E. M. 1973, *Elektrodynamika sploshnykh sred*, (Moscow: Nauka Press).
- Landau, L. D. and Lifshitz, E. M. 1975, *The Classical Theory of Fields*, (Oxford: Pergamon Press).
- Landau, L. D. and Lifshitz, E. M. 1982, *Teoriya polya*, (Moscow: Nauka Press).
- Landau, L. D. and Lifshitz, E. M. 1986, *Hydrodynamics (in Russian)*, (Moscow: Nauka Press).
- Langdon, A. B., Arons, J., and Max, C. E. 1988, Structure of relativistic magnetosonic shocks in electron-positron plasmas, *Phys. Rev. Lett.*, **61**, 779.
- Langer, S. 1981, Collisional excitation of electron Landau levels in strong magnetic fields, *Phys. Rev.*, **D 23**, 328.
- Larroche, O. and Pellat, R. 1987, Curvature instability of relativistic particle beams, *Phys. Rev. Lett.*, **59**, 1104.
- Larroche, O. and Pesme, D. 1990, The source-driven dissipative nonlinear Schrödinger model of resonance absorption, *Physica B*, **2**, 1751–1767.
- Lattimer, J. M. and Schramm, D. N. 1979, The tidal disruption of neutron stars by black holes in close binaries, *Astrophys. J.*, **210**, 549–567.
- Leboeuf, J. N., Ashour-Abdalla, M., Tajima, T., Kennel, C. F., Coroniti, F. V., and Dawson, J. M. 1982, Ultrarelativistic waves in overdense electron-positron plasma, *Phys. Rev.*, **A25**, 1023.
- Lerche, I. 1968, Enhanced bremsstrahlung from supraluminous, and subluminal, waves in an isotropic, homogeneous plasma, *Phys. Fluids*, **11**, 2459.
- Lindblom, L. 1984, Limits on the gravitational redshift from neutron stars, *Astrophys. J.*, **278**, 364–368.
- Linscott, I. R. and Hankins, T. H. 1981, Detection of the Crab giant pulses at high frequencies, *Bull. American Astron. Soc.*, **12**, 820.
- Litvak, A. G. and Sergeev, A. M. 1978, One-dimensional collapse of plasma waves, *Soviet Phys. JETP Letters*, **27**, 517.
- Lochner, J. C., Swank, J. H., and Szymkowiak, A. E. 1989, A search for a dynamical attractor in Cygnus X-1, *Astrophys. J.*, **337**, 823.
- Lominadze, J. G., Machabeli, G. Z., Melikidze, G. I., and Pataraya, A. D. 1986, Magnetospheric plasma of a pulsar, *Sov. J. Plasma Phys.*, **12**, 712.
- Lominadze, J. G., Machabeli, G. Z., and Usov, V. V. 1983, Theory of NP 0532 pulsar radiation and the nature of the activity of the Crab nebula, *Astrophys. Space Sci.*, **90**, 19–43.
- Lominadze, J. G., Mikhailovskii, A. B., and Sagdeev, R. Z. 1979, Langmuir turbulence of a relativistic plasma in a strong magnetic field, *Soviet Phys. JETP*, **50**, 927.
- Lominadze, J. G., Stenflo, L., Tsytovich, V. N., and Wilhelmsson, H. 1982, A new explanation of the high effective temperatures in pulsar radio emission, *Physica Scripta*, **26**, 455.
- Lowson, M. V. and Juce, R. J. 1974, Wave forms for a supersonic rotor, *J. Sound Vib.*, **37**, 475.
- Lozinskaya, T. A. 1986, *Supernovae and Stellar Wind*, (Moscow: Nauka Press).
- Lyne, A. G. 1983. private communication.

- Lyne, A. G. 1987, A massive glitch in an old pulsar, *Nature*, **326**, 569–571.
- Lyne, A. G., Anderson, B., and Salter, M. J. 1982, The proper motions of 26 pulsars, *Mon. Not. R. astr. Soc.*, **201**, 503–520.
- Lyne, A. G. and Ashworth, M. 1983, The affect of nulls upon subpulse drift in PSRs 0809+74 and 0818–13, *Mon. Not. R. astr. Soc.*, **204**, 519–536.
- Lyne, A. G., Biggs, J. D., Brinklow, A., Ashworth, M., and McKenna, J. 1988, Discovery of a binary millisecond pulsar in the globular cluster M4, *Nature*, **332**, 45.
- Lyne, A. G., Brinklow, A., Middleditch, J., Kulkarni, S. R., Backer, D. C., and Clifton, T. R. 1987, The discovery of a millisecond pulsar in the globular cluster M28, *Nature*, **328**, 399–401.
- Lyne, A. G. and Graham-Smith, F. 1990, *Pulsar Astronomy*, (Cambridge: Cambridge Univ. Press).
- Lyne, A. G., Johnston, S., Manchester, R. N., Staveley-Smith, L., D'Amico, N., Lim, J., Fruchter, A. S., and Goss, W. M. 1990a. IAU circular 4974.
- Lyne, A. G. and Large, M. I. 1976, Unpublished work.
- Lyne, A. G. and Manchester, R. N. 1988, The shape of pulsar radio beams, *Mon. Not. R. astr. Soc.*, **234**, 477508.
- Lyne, A. G. *et al.* 1990b, An eclipsing millisecond pulsar in the globular cluster Terzan 5, *Nature*, **347**, 650–652.
- Lyne, A. G., Manchester, R. N., and Taylor, J. H. 1985, The galactic population of pulsars, *Mon. Not. R. astr. Soc.*, **213**, 613.
- Lyne, A. G., Pritchard, R. S., and Smith, F. G. 1988, Crab pulsar timing 1982–1987, *Mon. Not. R. astr. Soc.*, **233**, 667.
- Lyne, A. G., Ritchings, R. T., and Smith, F. G. 1975, The period derivatives of pulsars, *Mon. Not. R. astr. Soc.*, **171**, 579.
- Lyne, A. G., Smith, F. G., and Graham, D. A. 1971, Characteristics of the radio pulses from the pulsars, *Mon. Not. R. astr. Soc.*, **153**, 337.
- Lyubarskii, Y. E. 1990, Equilibrium of the return current sheet and structure of the pulsar magnetosphere, *Sov. Astron. Lett.*, **16**(1), 16–20.
- Macdonald, D. A. and Thorne, K. S. 1982, Black hole electrodynamics: An absolute-space/time-universal formulation, *Mon. Not. R. astr. Soc.*, **198**, 345.
- Macdonald, G. J. F. and Ness, N. F. 1961, A study of free oscillations of the Earth, *Journal of Geophys. Research*, **66**, 1865–1911.
- Machabeli, G. Z. and Usov, V. V. 1979, *Sov. Astron. Lett.*, **5**, 445.
- Malofeev, V. M. and Malov, I. F. 1980, Mean spectra for 39 pulsars, and the interpretation of their characteristic features, *Sov. Astron.*, **24**, 54.
- Malone, R. C., Johnson, M. B., and Bethe, H. A. 1975, Neutron star models with realistic high-density equations of state, *Astrophys. J.*, **199**, 741–748.
- Malov, I. F. 1983, Energies of electrons and angles between the axis of magnetic field and rotation axis in pulsars, *Astrofizika*, **19**, 161.
- Malov, I. F. 1985, On the two pulsar types, *Sov. Astron.*, **29**, 144–147.
- Malov, I. F. 1986, On the angles between the axis of magnetic dipole and the axis of rotation of pulsars, *Astrofizika*, **24**, 507.
- Malov, I. F. 1987, Two type of pulsars, *Aust. J. Phys.*, **40**, 731.
- Malov, I. F. 1989, Prospects of a search for x-rays from aligned radio pulsars, *Sov. Astron. Lett.*, **15**, 196.
- Malov, I. F. 1990, Angle between the magnetic field and the rotation axis in pulsars, *Sov. Astron.*, **34**, 189.
- Malov, I. F. 1991, The distribution of emitting regions in pulsars' magnetospheres, *Pis'ma Astron. Zh.*, **17**, 595.
- Malov, I. F. and Malofeev, V. M. 1981, Radio spectra of pulsars II. The interpretation., *Astrophys. Space Sci.*, **78**, 73–83.
- Malov, I. F. and Malofeev, V. M. 1992, On the nature of the high-frequency cutoff in the radio spectra of pulsars, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars, IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 154–156.
- Manchester, R. N. 1971, Observations of pulsar polarization at 410 and 1665 MHz, *Astrophys. J. Supp. Series*, **23**, 283–322.
- Manchester, R. N. 1974, Pulsar radiation mechanisms: What are the critical experiments?, *Science*, **186**, 66.
- Manchester, R. N. 1990. personal communication.
- Manchester, R. N., Durdin, J. M., and Newton, L. M. 1985, A second measurement of a pulsar braking index, *Nature*, **313**, 374.
- Manchester, R. N., Hamilton, P. A., and McCulloch, P. M. 1980, Polarization characteristics of southern pulsars – III. 1612-MHz observations, *Mon. Not. R. astr. Soc.*, **192**, 153–177.
- Manchester, R. N., Lyne, A. G., D'Amico, N., Johnston, S., Lim, J., and Kniffen, D. A. 1990, A millisecond pulsar in 47 Tucanae, *Nature*, **345**, 598.
- Manchester, R. N. *et al.* 1978, Optical observations of Southern pulsars, *Mon. Not. R. astr. Soc.*, **184**, 159–170.
- Manchester, R. N. and Peterson, B. A. 1989, A braking index for PSR 0540–69, *Astrophys. J.*, **342**, L23.
- Manchester, R. N. and Taylor, J. H. 1977, *Pulsars*, (San Francisco: Freeman).
- Manchester, R. N. and Taylor, J. H. 1981, Observed and derived parameters for 330 pulsars, *Astron. J.*, **86**, 1953–1973.
- Manchester, R. N., Taylor, J. H., and Huguenin, G. R. 1973, Frequency dependence of pulsar polarization, *Astrophys. J.*, **179**, L7–L10.
- Manchester, R. N., Taylor, J. H., and Huguenin, G. R. 1975, Observations of pulsar radio emission. II. Polarization of individual pulses, *Astrophys. J.*, **196**, 83–102.
- Matese, J. J. and Whitmire, D. P. 1980, Implications of emission zone limits for the Ruderman-Sutherland pulsar model, *Astrophys. J.*, **235**, 587–591.
- Max, C. E. 1973, Parametric instability of a relativistically strong electromagnetic wave, *Phys. Fluids*, **16**, 1480.
- McCray, R. 1966, Possibility of maser action in cosmic radio sources, *Science*, **154**, 1320.
- McCulloch, P. M., Hamilton, P. A., Ables, J. G., and Komesaroff, M. M. 1976, PSR 1055–52—A pulsar resembling the Crab nebula pulsar, *Mon. Not. R. astr. Soc.*, **175**, 71P–75P.
- McCulloch, P. M., Hamilton, P. A., Manchester, R. N., and Ables, J. G. 1978, Polarization characteristics of southern pulsars – II. 640-MHz observations, *Mon. Not. R. astr. Soc.*, **183**, 645–676.
- McCulloch, P. M., Hamilton, P. A., Royle, G. W. R., and Manchester, R. N. 1983, Daily observations of a large period jump of the Vela pulsar, *Nature*, **302**, 319–321.
- McCulloch, P. M., Klekociuk, A. R., Hamilton, P. A., and Royle, G. W. R. 1987, Daily observations of three period jumps of the Vela pulsar, *Aust. J. Phys.*, **40**, 725–730.

- McDermott, P. N., Savedoff, M. P., Van Horn, H. M., Zweible, E. G., and Hansen, C. J. 1984, Electromagnetic damping of neutron star oscillations, *Astrophys. J.*, **281**, 746–750.
- McDermott, P. N., Van Horn, H. M., and Hansen, C. J. 1988, Nonradial oscillations of neutron stars, *Astrophys. J.*, **325**, 725–748.
- McKenna, J. and Lyne, A. G. 1988, Timing measurements of the binary millisecond pulsar in the globular cluster M4, *Nature*, **336**, 226–227.
- McKinnon, M. M. and Hankins, T. H. 1992, Intensity dependence of the PSR0329+54 pulse profile, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 191–193.
- Melrose, D. B. 1976, Effects of an ambient magnetic field on the properties of Langmuir waves, *Solar Phys.*, **46**, 511.
- Melrose, D. B. 1978, Amplified linear acceleration emission applied to pulsars, *Astrophys. J.*, **225**, 557.
- Melrose, D. B. 1979, Propagation effects on the polarization of pulsar radio emission, *Aust. J. Phys.*, **32**, 61.
- Melrose, D. B. 1980, *Plasma Astrophysics*, (New York: Gordon and Breach). 2 vols.
- Melrose, D. B. 1981, Maser pulse emission mechanisms, in *Pulsars, 13 Years of Research on Neutron Stars*, IAU Symposium No. 95, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 133–140.
- Melrose, D. B. 1986, *Instabilities in Space and Laboratory Plasmas*, (Cambridge: Cambridge Univ. Press).
- Melrose, D. B. 1989, The brightness temperatures of solar type III bursts, *Solar Phys.*, **120**, 369.
- Melrose, D. B. 1992, Coherent radio emission mechanisms for pulsars, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 307–316.
- Melrose, D. B. and Dulk, G. A. 1982, Electron-cyclotron masers as the source of certain solar and stellar radio bursts, *Astrophys. J.*, **259**, 884.
- Melrose, D. B. and Goldman, M. V. 1987, Microstructures in type III events in the solar wind, *Solar Phys.*, **107**, 329.
- Melrose, D. B. and Parle, A. J. 1983, Quantum electrodynamics in strong magnetic field, *Aust. J. Phys.*, **36**, 799.
- Melrose, D. B. and Stoneham, R. J. 1977, The natural modes in a pulsar magnetosphere, *Proc. Astr. Soc. Aust.*, **3**, 120–122.
- Mertz, L. 1974, Mode-locked maser theory of pulsars, *Astrophys. Space Sci.*, **30**, 43.
- Mestel, L. 1971, Pulsar magnetosphere, *Nature Phys. Sci.*, **233**, 149.
- Mestel, L. 1981, Structure of the pulsar magnetosphere, in *Pulsars, 13 Years of Research on Neutron Stars*, IAU Symposium No. 95, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 9–23.
- Mestel, L., Phillips, P., and Wang, Y. M. 1979, The axisymmetric pulsar magnetosphere – I, *Mon. Not. R. astr. Soc.*, **188**, 385–414.
- Mestel, L., Robertson, J. A., Wang, Y. M., and Westfold, K. C. 1985, The axisymmetric pulsar magnetosphere, *Mon. Not. R. astr. Soc.*, **217**, 443.
- Mestel, L. and Wang, Y. M. 1979, The axisymmetric pulsar magnetosphere – II, *Mon. Not. R. astr. Soc.*, **188**, 799–812.
- Mészáros, P. and Riffert, H. 1987, On the radius of neutron stars, *Astrophys. J.*, **323**, L30.
- Meurs, E. J. A. and van den Heuvel, E. P. J. 1989, The number of evolved early-type close binaries in the galaxy, *Astr. Astrophys.*, **226**, 88.
- Michel, F. C. 1969, Relativistic stellar wind torques, *Astrophys. J.*, **158**, 727.
- Michel, F. C. 1972, Accretion of matter by condensed objects, *Astrophys. Space Sci.*, **15**, 153–160.
- Michel, F. C. 1973, Rotating magnetosphere: A simple relativistic model, *Astrophys. J.*, **180**, 207.
- Michel, F. C. 1974, Rotating magnetosphere: Acceleration of plasma from the stellar surface, *Astrophys. J.*, **192**, 713.
- Michel, F. C. 1980, The quiet aligned rotator, *Astrophys. Space Sci.*, **72**, 175–181.
- Michel, F. C. 1981, Pulsar disk systems, *Astrophys. J.*, **251**, 654.
- Michel, F. C. 1982, Theory of pulsar magnetospheres, *Reviews of Modern Physics*, **54**, 1–66.
- Michel, F. C. 1983, Radio pulsar disk electrodynamics, *Astrophys. J.*, **266**, 188–200.
- Michel, F. C. 1985, Gamma-ray bursts from remnant neutron star disks, *Astrophys. J.*, **290**, 721–727.
- Michel, F. C. 1987a, Pulsar activation by the interstellar medium, *Astrophys. J.*, **312**, 271.
- Michel, F. C. 1987b, A pulsar emission model: Observational tests, *Astrophys. J.*, **322**, 822.
- Michel, F. C. 1990, submitted to *Astrophys. J.*
- Michel, F. C. 1991, *Theory of Neutron Star Magnetospheres*, (Chicago: The University of Chicago Press).
- Michel, F. C. and Dessler, A. J. 1981, Pulsar disk systems, *Astrophys. J.*, **251**, 654–664.
- Michel, F. C. and Goldwire, H. C. 1970, Alignment of oblique rotators, *Astrophys. J.*, **5**, 21.
- Michel, F. C., Scowen, P. A., Dufour, R. J., and Hester, J. J. 1991, Observation of a pulsar wind: CCD photometry of the Crab nebula, *Astrophys. J.*, **368**, 463.
- Mikhailovskii, A. B., Onishchenko, O. G., and Smolyakov, A. I. 1985, Theory of low-frequency electromagnetic solitons in relativistic electron-positron plasma, *Sov. J. Plasma Phys.*, **11**, 215.
- Mikhailovskii, A. B., Onishchenko, O. G., Suramlishvili, G. I., and Sharapov, S. E. 1982a, The emergence of electromagnetic waves from pulsar magnetospheres, *Sov. Astron. Lett.*, **8**, 369.
- Mikhailovskii, A. B., Onishchenko, O. G., Suramlishvili, G. I., and Sharapov, S. E. 1982b, On the problem of the coming out of electromagnetic waves from the magnetosphere of pulsars, *Pis'ma Astron. Zh.*, **8**, 685–688.
- Mikhailovskii, A. B., Onishchenko, O. G., and Tatarinov, E. G. 1985a, Alfvén solitons in a relativistic electron-positron plasma II. Kinetic theory, *Plasma Phys. Contr. Fusion*, **27**, 539.
- Mikhailovskii, A. B., Onishchenko, O. G., and Tatarinov, E. G. 1985b, Alfvén solitons in a relativistic electron-positron plasma I. Hydrodynamic theory, *Plasma Phys. Contr. Fusion*, **27**, 527.
- Minkowski, R. 1968, Nonthermal galactic radio sources, in *Nebulae and Interstellar Matter*, ed. B. M. Middlehurst and L. H. Aller, (Chicago: University of Chicago Press), 623.
- Misner, C. W., Thorne, K. S., and Wheeler, J. A. 1973, *Gravitation*, (San Francisco: W. H. Freeman).
- Mofiz, U. A. 1989, Isolated solitons in an ultrarelativistic electron-positron plasma of a pulsar magnetosphere, *Phys. Rev.*, **A40**, 2203.

- Mofiz, U. A., Bhuiyan, G. M., Ahmed, Z., and Asgar, M. A. 1988, Relativistic excitation of envelope solitons in electron-positron plasmas of the pulsar magnetospheres, *Phys. Rev.*, **A38**, 5935.
- Mofiz, U. A., de Angelis, U., and Forlani, A. 1984, Localized solutions for circularly polarized electromagnetic waves in electron-positron plasmas, *Plasma Phys. Contr. Fusion*, **26**, 1099.
- Mofiz, U. A., de Angelis, U., and Forlani, A. 1985, Solitons in weakly nonlinear electron-positron plasmas and pulsar microstructures, *Phys. Rev.*, **A31**, 951.
- Mofiz, U. A. and Podder, J. 1987, Solitons in strongly magnetized electron-positron plasmas and pulsar microstructures, *Phys. Rev.*, **A36**, 1811.
- Morris, D. and Berge, G. L. 1962, Measurements of the polarization and angular extent of the decimeter radiation from Jupiter, *Astrophys. J.*, **136**, 276.
- Morris, D., Graham, D. A., Seiber, W., Bartel, N., and Thomasson, P. 1981, Observations of the polarization of average pulsar profiles at high frequency, *Astr. Astrophys. Suppl. Ser.*, **46**, 421–472.
- Müller, E. 1984, Variational calculation of iron and helium atoms and molecular chains in superstrong magnetic fields, *Astr. Astrophys.*, **130**, 415.
- Murakami, T. *et al.* 1988, Evidence for cyclotron absorption from spectral features in gamma-ray bursts seen with Ginga, *Nature*, **335**, 234.
- Muslimov, A. G. and Tsygan, A. I. 1985, Neutron star superconductivity and superfluidity and the decay of pulsar magnetic fields, *Sov. Astron.*, **L11**, 80.
- Muslimov, A. G. and Tsygan, A. I. 1986, The electric fields induced by the rotating neutron star in vacuo in General Relativity, *Astron. Zh.*, **63**, 958.
- Muslimov, A. G. and Tsygan, A. I. 1990a, The effects of General Relativity on the electrodynamics of a pulsar, in *Proc. of Adriatic Working Party on Condensed Matter Properties of Neutron Stars (11-29 Sept. 1989 Trieste)*, (Singapore: World. Sci. Publ.).
- Muslimov, A. G. and Tsygan, A. I. 1990b, The influence of general relativistic effects on the electrodynamics of neutron stars, *Astron. Zh.*, **67**, 263.
- Nagase, F. 1989, Accretion-powered x-ray pulsars, *Publ. Astron. Soc. Japan*, **41**, 1.
- Narayan, R. 1987, The birthrate and initial spin period of single radio pulsars, *Astrophys. J.*, **319**, 162–179.
- Narayan, R. and Ostriker, J. P. 1990, Pulsar populations and their evolution, *Astrophys. J.*, **352**, 222–246.
- Narayan, R. and Vivekanand, M. 1981, A lower limit for the birthrate of pulsars, *Nature*, **290**, 571–572.
- Narayan, R. and Vivekanand, M. 1982, Geometry of pulsar beams: Relative orientation of rotation axis, magnetic axis and line of sight, *Astr. Astrophys.*, **113**, L3–L6.
- Narayan, R. and Vivekanand, M. 1983, Evidence for evolving elongated pulsar beams, *Astr. Astrophys.*, **122**, 45–53.
- Nelder, J. A. and Mead, R. 1965, A simplex method for function minimization, *Computer Journal*, **7**, 308–313.
- Nelson, R. and Wasserman, I. 1989, Resonant mode-mode coupling in torsional oscillations of neutron stars, *Bull. American Astron. Soc.*, **20**, 1349.
- Neuhauser, D., Koonin, S. E., and Langanke, K. 1987, Hartree-Fock calculations of atoms and molecular chains in strong magnetic fields, *Phys. Rev.*, **A36**, 4163.
- Nomoto, K., Shigeyama, T., Kumagai, S., and Hashimoto, M. 1988, New developments in theoretical modelling of SN 1987A, *Proc. Astr. Soc. Aust.*, **7**, 490–504.
- Nomoto, K. and Tsuruta, S. 1987, Cooling of neutron stars: Effects of the finite time scale of thermal conduction, *Astrophys. J.*, **312**, 711.
- Novikov, A. Y., Popov, M. V., Smirnova, T. V., and Soglasnov, V. A. 1983, *Sov. Astron.*, **60**, 280.
- Nowakowski, L. A. 1991, PSR 0540+23 revisited: Three components, drifting subpulses and mode switching, *Astrophys. J.*, **377**, 581–587.
- Nowakowski, L. A. and Hankins, T. H. 1985, preprint.
- Ochelkov, Y. P. and Usov, V. V. 1980, Curvature radiation of relativistic particles in the magnetosphere of pulsars I. Theory, *Astrophys. Space Sci.*, **69**, 439–460.
- Ögelman, H., Fichtel, C. E., Kniffen, D. A., and Thompson, D. J. 1976, A search of the SAS-2 data for the pulsed gamma-ray emission from radio pulsars, *Astrophys. J.*, **209**, 584.
- Ögelman, H. and Zimmerman, H. U. 1989, Soft X-ray observations of the Vela pulsar PSR 0833–45, *Astr. Astrophys.*, **214**, 179–185.
- Okamoto, I. 1974, Force free pulsar magnetosphere - I. The steady axisymmetric theory from the charge separated plasma, *Mon. Not. R. astr. Soc.*, **167**, 457.
- Onischenko, O. G. 1981, On the theory of orthogonal modes in pulsar radio emission, *Sov. Astron. Lett.*, **7**, 731.
- Ostriker, J. P. and Gunn, J. E. 1969, On the nature of pulsars: I. Theory, *Astrophys. J.*, **157**, 1395.
- Ostriker, J. P., Rees, M. J., and Silk, J. I. 1970, Some observable consequences of accretion by defunct pulsars, *Astrophys. Lett.*, **6**, 179–184.
- Ott, E., Antonsen, T. M., and Lovelace, R. V. 1977, Theory of foil-less diode generation of intense relativistic electron beams, *Phys. Fluids*, **20**, 1180.
- Pacini, F. 1967, Energy emission from a neutron star, *Nature*, **216**, 567–568.
- Packard, N. H., Crutchfield, J. P., Farmer, J. D., and Shaw, R. S. 1980, Geometry from a time series, *Phys. Rev. Lett.*, **45**, 712.
- Paczynski, B. 1981, Evolution of cataclysmic binaries, *Acta Astron.*, **31**, 1–12.
- Page, C. G. 1973, The drifting subpulse phenomenon in PSR 0809+74, *Mon. Not. R. astr. Soc.*, **163**, 29–40.
- Pandharipande, V. R. 1971a, Dense neutron matter with realistic interactions, *Nucl. Phys.*, **A174**, 641–656.
- Pandharipande, V. R. 1971b, Hyperionic matter, *Nucl. Phys.*, **A178**, 123–144.
- Pataraya, A. and Melikidze, G. 1980, Modulational instability of nonlinear waves in the relativistic plasma with account of the nonlinear Landau damping, *Astrophys. Space Sci.*, **68**, 61.
- Pekeris, C. L., Alterman, Z., and Jarosch, H. 1961, *Phys. Rev.*, **122**, 1692.
- Pellat, R. 1979, Theoretical aspects of coherent radio-emission in nature: The pulsar example, *Space Sci. Rev.*, **24**, 601.
- Pelletier, G., Sol, H., and Asséo, E. 1988, Magnetized Langmuir wave packets excited by a strong beam-plasma interaction, *Phys. Rev.*, **38**, 2552.
- Pelling, R. M., Paciesas, W. S., Peterson, L. E., Makashima, K., Oda, M., Ogawara, Y., and Miyamoto, S. 1987, A scanning modulation collimator observation of the high energy x-ray source in the Crab nebula, *Astrophys. J.*, **319**, 416.
- Petschek, H. E. 1964, Physics of solar flares, in *AAS-NASA Symp. Physics of Solar Flares*, (Washington, D. C.: NASA Publications SP-50), 425.
- Petschek, H. E. and Thorne, R. M. 1967, The existence of intermediate waves in neutral sheets, *Astrophys. J.*, **147**, 1157.

- Phillips, J. A. 1990, The magnetic geometry and radio beam of PSR 1929+10, *Astrophys. J.*, **361**, L57.
- Phillips, J. A. and Wolszczan, A. 1989, Interpulse emission from pulsars at 25 MHz, *Astrophys. Lett.*, **344**, L69.
- Phillips, J. A. and Wolszczan, A. 1990, Pulsar astronomy at meter and decimeter wavelengths: Results from Arecibo, in *Low Frequency Radio Astronomy from Space*, ed. K. Weiler and N. Kassim, (New York: Springer-Verlag Lecture Notes in Physics Series), 175.
- Piddington, J. H. 1957, The Crab nebula and the origin of interstellar magnetic fields, *Aust. J. Phys.*, **10**, 530.
- Pines, D. 1980, Pulsars and compact X-ray sources—cosmic laboratories for the study of neutron stars and hadrom matter, *Usp. Fiz. Nauk.*, **131**, 479–494.
- Popov, M. V. and Smirnova, T. V. 1982, The drift behavior of PSR 0809+74, *Sov. Astron.*, **26**, 439–442.
- Popov, M. V., Smirnova, T. V., and Soglasnov, V. A. 1987, Study of the microstructure of pulsars PSR 0809+74, 0950+08 and 1133+16 in a frequency range 67 – 102 MHz, *Sov. Astron.*, **31**(5), 529.
- Popov, M. V., Smirnova, T. V., Soglasnov, V. A., and Novikov, A. Y. 1985, *Sov. Astron.*, **62**, 561.
- Press, W. H., Flannery, B. P., Teukolsky, S. A., and Vetterling, W. T. 1986, *Numerical Recipes: The Art of Scientific Computing*, (New York: Cambridge University Press).
- Prószyński, M. and Przybycień, D. 1984, Pulsar statistics: a study of pulsar luminosities, in *Millisecond pulsars*, ed. S. P. Reynolds and D. R. Stinebring, (Green Bank: NRAO), 151–157.
- Prószyński, M. A. 1979, Geometry of pulsar emission and pulse width statistics, *Astr. Astrophys.*, **79**, 8.
- Qiao, G. J. 1988a, Inverse-Compton Scattering plays an important role in pulsar emission, in *High Energy Astrophysics*, ed. G. Borner, (New York: Springer-Verlag), 88.
- Qiao, G. J. 1988b, A mechanism for core emission of pulsars, *Vistas Astro.*, **31**, 393.
- Qiao, G. J. 1992, The radiation beams and the pulse profiles of pulsars in an Inverse Compton Scattering (ICS) model, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 239–242.
- Qiao, G. J., Li, C. G., and Li, M. 1992, The locations of the core and conal emission regions in an Inverse-Compton Scattering model, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 243–245.
- Qiao, G. J., Wu, X. J., Bao, W., and Xia, X. Y. 1986, Inverse Compton Scattering in strong magnetic fields and optical emission of the Crab pulsar, *Scientia Sinica*, **7**, 732.
- Radhakrishnan, V. 1969, Fifteen months of pulsar astronomy, *Proc. Astr. Soc. Aust.*, **1**, 254.
- Radhakrishnan, V. 1982, On the nature of pulsars, *Contemp. Phys.*, **23**, 207–231.
- Radhakrishnan, V. and Cooke, D. J. 1969, Magnetic poles and the polarization structure of pulsar radiation, *Astrophys. Lett.*, **3**, 225.
- Radhakrishnan, V. and Rankin, J. M. 1990, Toward an empirical theory of pulsar emission: V. On the circular polarization in pulsar radiation, *Astrophys. J.*, **352**, 258–266.
- Ramaty, R., Bonazzola, S., Cline, T. L., Kazanas, D., and Mészáros, P. 1980, Origin of the 5 March 1979 gamma-ray transient: a vibrating neutron star, *Nature*, **287**, 122–124.
- Rankin, J. M. 1983a, Toward an empirical theory of pulsar emission: I. Morphological taxonomy, *Astrophys. J.*, **274**, 333–358.
- Rankin, J. M. 1983b, Toward an empirical theory of pulsar emission: II. On the spectral behavior of component width, *Astrophys. J.*, **274**, 359–368.
- Rankin, J. M. 1986, Toward an empirical theory of pulsar emission: III. Mode changing, drifting subpulses and pulse nulling, *Astrophys. J.*, **301**, 901–922.
- Rankin, J. M. 1988, On the polarization modal construction of triplicity in the profile of pulsar PSR 1604–00, *Astrophys. J.*, **325**, 314–319.
- Rankin, J. M. 1990, Toward an empirical theory of pulsar emission: IV. Geometry of the core emission region, *Astrophys. J.*, **352**, 247.
- Rankin, J. M. 1992, On the primary importance of pulsars with five-component profiles, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 196–201.
- Rankin, J. M., Campbell, D. B., and Backer, D. C. 1974, Individual pulse polarization properties of three pulsars, *Astrophys. J.*, **188**, 609–613.
- Rankin, J. M., Comella, J. M., Craft, Jr., H. D., Richards, D. W., Campbell, D. B., and Counselman, C. C. 1970, Radio pulse shapes, flux densities, and dispersion of pulsar NP 0532, *Astrophys. J.*, **162**, 707–725.
- Rankin, J. M. and Gil, J. A. 1989, Phenomenology and the problem of pulsar emission, *Comments in Astrophysics*, **14**, 1–10.
- Rankin, J. M., Stinebring, D. R., and Weisberg, J. M. 1989, Arecibo 21-cm polarimetry of 64 pulsars: A guide to classification, *Astrophys. J.*, **346**, 869–897.
- Rankin, J. M., Wolszczan, A., and Stinebring, D. R. 1988, Mode changing and quasi-periodic modulation in pulsar 1737+13, a bright, five-component pulsar, *Astrophys. J.*, **324**, 1048–1055.
- Rappaport, S., Putney, A., and Verbunt, F. 1989, Evolution of wide binary millisecond pulsars in globular clusters, *Astrophys. J.*, **345**, 210–221.
- Rawley, L. A., Taylor, J. H., and Davis, M. M. 1988, Fundamental astrometry and millisecond pulsars, *Astrophys. J.*, **326**, 947–953.
- Rawley, L. A., Taylor, J. H., Davis, M. M., and Allan, D. W. 1987, Millisecond pulsar PSR 1937+21: A highly stable clock, *Science*, **238**, 761.
- Rees, M. J. and Gunn, J. E. 1974, The origin of the magnetic field and relativistic particles in the Crab nebula, *Mon. Not. R. astr. Soc.*, **167**, 1.
- Reynolds, R. J. 1989, The column density and scale height of free electrons in the galactic disk, *Astrophys. J.*, **339**, L29.
- Rickett, B. J. 1975, Amplitude-modulated noise: An empirical model for the radio radiation received from pulsars, *Astrophys. J.*, **197**, 185–191.
- Rickett, B. J. 1977, Interstellar scattering and scintillation of radio waves, *Ann. Rev. Astr. Ap.*, **15**, 479–504.
- Rickett, B. J. and Cordes, J. M. 1981, The location, spectrum and beamwidth of pulsar radiation from polar cap models, in *Pulsars, 13 Years of Research on Neutron Stars*, IAU Symposium No. 95, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 107–109.

- Rickett, B. J., Hankins, T. H., and Cordes, J. M. 1975, The radio spectrum of micropulses from pulsar PSR 0950+08, *Astrophys. J.*, **201**, 425–430.
- Ritchings, R. T. 1976, Pulsar single pulse intensity measurements and pulse nulling, *Mon. Not. R. astr. Soc.*, **176**, 249–263.
- Rizzato, F. B. 1988, Weakly nonlinear electromagnetic waves and low-frequency magnetic field in electron-positron plasmas, *J. Plasma Phys.*, **40**, 289.
- Rizzato, F. B., Schneider, R. S., and Dillenburg, D. 1988, Electromagnetic solitons in a strongly magnetized electron-positron-ion plasma, *Phys. Lett.*, **A133**, 59.
- Romani, R. W. 1990a, Binary periods of cluster pulsars, *Astrophys. J.*, **357**, 493–501.
- Romani, R. W. 1990b, A unified model of neutron-star magnetic fields, *Nature*, **347**, 741.
- Romani, R. W. and Hernquist, L. E. 1992, Evolution of thermally generated neutron-star magnetic fields, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 46–48.
- Rowe, E. T. 1990, A linear acceleration emission mechanism, *Proc. Astr. Soc. Aust.*, **8**, 357–359.
- Rowe, E. T. 1992, Linear acceleration emission: A detailed analysis, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars*, IAU Colloquium No. 128, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 123–129.
- Ruderman, M. 1970, Long period oscillations in rotating neutron stars, *Nature*, **225**, 619–620.
- Ruderman, M. 1971, Matter in superstrong magnetic fields: The surface of a neutron star, *Phys. Rev. Lett.*, **27**, 1306–1308.
- Ruderman, M. A. 1981, Evolution and radiation in pulsar polar cap models, in *Pulsars, 13 Years of Research on Neutron Stars*, IAU Symposium No. 95, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 87–98.
- Ruderman, M. A. 1985, *Cosmogonical Processes*, (Utrecht: VNU Scienc Press).
- Ruderman, M. A. 1987, Energetic radiation from magnetized neutron stars, in *High energy phenomena around collapsed stars. Proceedings of a NATO Advanced Study Institute*, ed. F. Pacini, (Dordrecht: D. Reidel).
- Ruderman, M. A. and Sutherland, P. G. 1973, Possible origin of magnetic field in neutron stars and magnetic white dwarfs, *Nature Phys. Sci.*, **246**, 93.
- Ruderman, M. A. and Sutherland, P. G. 1975, Theory of pulsars: Polar gaps, sparks, and coherent microwave radiation, *Astrophys. J.*, **196**, 51.
- Ruelle, D. 1981, *In nonlinear phenomena in chemical dynamics*, (Berlin: Springer-Verlag).
- Rylov, Y. A. 1976, Electron and proton regions in the magnetosphere of a charged rotating neutron star with a strong magnetic field, *Sov. Astron.*, **20**, 23.
- Rylov, Y. A. 1977, On the electron cap shape of a rotating neutron star, *Astrophys. Space Sci.*, **51**, 59.
- Rylov, Y. A. 1978, On a klystron mechanism of generation of vibrations in pulsar magnetospheres, *Astrophys. Space Sci.*, **53**, 377–402.
- Rylov, Y. A. 1979, Acceleration of electrons in an internal zone of the pulsar polar cap, *Astrophys. Space Sci.*, **66**, 401–428.
- Rylov, Y. A. 1981, Electron-positron pair production in the pulsar magnetosphere, *Astrophys. Space Sci.*, **75**, 423.
- Rylov, Y. A. 1982, The production mechanism of electron-positron bunches in a pulsar magnetosphere and their thermal radio emission, *Astrophys. Space Sci.*, **88**, 173–184.
- Rylov, Y. A. 1984, Influence of electron-positron pair production on a pulsar magnetosphere structure, *Astrophys. Space Sci.*, **107**, 381.
- Rylov, Y. A. 1985, The structure of polar caps and the equatorial belt of pulsars, *Astrophys. Space Sci.*, **117**, 5.
- Rylov, Y. A. 1987, Computer simulation of the particle acceleration in pulsar magnetospheres, *Astrophys. Space Sci.*, **132**, 353.
- Rylov, Y. A. 1988, Self-consistent model of the global structure of axially-symmetric pulsar magnetosphere in massless approximation, *Astrophys. Space Sci.*, **143**, 269.
- Rylov, Y. A. 1989, The algebraical structure of the electromagnetic tensor and description of charged particles moving in the strong electromagnetic field, *J. Math. Phys.*, **30**, 521.
- Rylov, Y. A. 1990, Conditions on two-phase boundary in the massless electron-positron gas, *Izvestiya Akademii Nauk SSSR. Mekhanika shidkosti i gaza*, **1**, 165. (in Russian).
- Sagdeev, R. Z. and Shafranov, V. D. 1960, On the instability of a plasma with an anisotropic distribution of velocities in a magnetic field, *Soviet Phys. JETP*, **39**, 181.
- Sakai, J. I. and Kawata, T. 1980a, Nonlinear Alfvén waves in an ultrarelativistic electron-positron plasma, *J. Phys. Soc. Japan*, **49**, 753.
- Sakai, J. I. and Kawata, T. 1980b, Waves in an ultrarelativistic electron-positron plasma, *J. Phys. Soc. Japan*, **49**, 747.
- Sang, Y. and Chanmugam, G. 1987, Ohmic decay of crustal neutron star magnetic fields, *Astrophys. J.*, **323**, L61–L64.
- Sauls, J. A. 1989, Superfluidity in neutron stars, in *Timing Neutron Stars, (NATO ASI series)*, ed. H. Ögelman and E. P. J. van den Heuvel, (Dordrecht: Kluwer), 457–490.
- Sauls, J. A. 1990, in *Condensed Matter Properties of Neutron Stars*, ed. G. Srinivasan, (Singapore: World Scientific).
- Savonije, G. J. 1983, Evolution and mass transfer in X-ray binaries, in *Accretion-Driven Stellar X-Ray Sources*, ed. W. H. G. Lewin and E. P. J. van den Heuvel, (Cambridge: Cambridge University Press), 343.
- Scargle, J. D. 1969, Activity in the Crab nebula, *Astrophys. J.*, **156**, 401.
- Scharlemann, E. T. 1974, Aligned rotating magnetospheres: II. Inclusion of inertial forces, *Astrophys. J.*, **193**, 217.
- Scharlemann, E. T., Arons, J., and Fawley, W. M. 1978, Potential drops above pulsar polar caps: Ultrarelativistic particle acceleration along the curved magnetic field, *Astrophys. J.*, **222**, 297.
- Scharlemann, E. T. and Wagoner, R. V. 1973, Aligned rotating magnetospheres: I. General analysis, *Astrophys. J.*, **182**, 951.
- Schiff, L. I. 1946, Production of particle energies beyond 200 MeV, *Rev. Sci. Instr.*, **17**, 6–14.
- Schmidt, G. D., Angel, J. R. P., and Beaver, E. A. 1979, The small-scale polarization of the Crab nebula, *Astrophys. J.*, **227**, 106–113.
- Schmitz, F. H. and Yu, Y. H. 1986, Helicopter impulsive noise: Theoretical and experimental status, *J. Sound Vib.*, **109**, 361.

- Schott, G. A. 1912, *Electromagnetic Radiation*, (Cambridge: Cambridge University Press).
- Schwinger, J., Tsai, W. Y., and Erber, T. 1976, Classical and quantum theory of synergic Synchrotron-Cherenkov radiation, *Ann. Phys. (N. Y.)*, **96**, 303.
- Sedrakian, D. M. and Movsisian, A. G. 1986, The magnetic moments of neutron stars with various equations of state, *Astrofizica*, **24**, 279.
- Segelstein, D. J., Rawley, L. A., Stinebring, D. R., Fruchter, A. S., and Taylor, J. H. 1986, New millisecond pulsar in a binary system, *Nature*, **322**, 714.
- Seiber, W., Reinecke, R., and Wielebinski, R. 1975, Observation of pulsars at high frequencies, *Astr. Astrophys.*, **38**, 169–182.
- Seward, F. D. and F. R. Harnden, J. 1982, A new, fast x-ray pulsar in the supernova remnant MSH 15–52, *Astrophys. J.*, **256**, L45–L47.
- Seward, F. D. and Wang, Z. R. 1988, Pulsars, x-ray synchrotron nebulae and guest stars, *Astrophys. J.*, **332**, 199–205.
- Shabad, A. E. 1975, Photon dispersion in a strong magnetic field, *Ann. Phys. N. Y.*, **90**, 166.
- Shabad, A. E. 1988, Polarization of vacuum and quantum relativistic gas, in *Proc. of the Lebedev Institute*, ed. V. L. Ginzburg, volume 192, (Moscow: Nauka), 5.
- Shabanova, T. V. 1990, Results of pulsar timing observations at 102.5 MHz, *Sov. Astron.*, **34**(3), 269–274.
- Shafranov, V. D. 1963, Voprosi teorii plazmi, *Gosatomizdat*, **3**, 3. in Russian.
- Shankar, N. U. and Shankar, T. S. R. 1990, A digital correlation receiver for the Gee Tee radiotelescope, *J. Astrophys. Astr.*, **11**, 297–310.
- Shapiro, S. L., Teukolsky, S. A., and Wasserman, I. 1983, Implications of the millisecond pulsar for neutron star models, *Astrophys. J.*, **272**, 702–707.
- Shaposhnikov, V. E. 1981, Curvature radiation on longitudinal waves in the magnetosphere of a neutron star, *Astrophysics*, **17**, 407.
- Shibata, S. 1990, A DC circuit model of a pulsar magnetosphere, *Astrophys. J.*, in press.
- Shibazaki, N. and Lamb, F. K. 1989, Neutron star evolution with internal heating, *Astrophys. J.*, **346**, 808–822.
- Shibazaki, N., Murakami, T., Shaham, J., and Nomoto, K. 1989, Does mass accretion lead to field decay in neutron stars, *Nature*, **342**, 656.
- Shitov, Y. P. 1971, Characteristic of pulsars radio emission at meter wavelengths. PhD thesis, Lebedev Physical Institute, Moscow.
- Shitov, Y. P. 1983, The dependence of the spectrum on the period and the twist effect of the pulsar magnetic field, *Sov. Astron.*, **27**, 314–321.
- Shitov, Y. P. 1985, Superdispersion pulse delay of the pulsar PSR 0809+74 at meter wavelengths, *Sov. Astron. Lett.*, **11**, 94.
- Shitov, Y. P., Malofeev, V. M., and Izvekova, V. A. 1988, Superdispersion delay of low-frequency pulsar pulses, *Sov. Astron. Lett.*, **14**, 181.
- Shklovskii, I. S. 1970, Pulsar NP 0532; An injection of relativistic particles in Crab nebula, *Astrophys. J.*, **159**, L77–L80.
- Shukla, P. K. 1985, Self-modulation of pulsar radiation in strongly magnetized electron-positron plasmas, *Astrophys. Space Sci.*, **114**, 381.
- Shukla, P. K., Rao, N. N., Yu, M. Y., and Tsintsadze, N. L. 1986, Relativistic nonlinear effects in plasmas, *Phys. Reports*, **138**, 1.
- Shull, J. M., Fesen, R. A., and Saken, J. M. 1989, Pulsar reenergization of old supernova remnant shells, *Astrophys. J.*, **346**, 860–868.
- Sieber, W. and Oster, L. 1975, Drifting subpulse behavior of PSR's 0943+10 and 2303+30, *Astr. Astrophys.*, **38**, 325–327.
- Sieber, W. and Wielebinski, R. 1987, Pulsar characteristics at 24 GHz, *Astr. Astrophys.*, **177**, 342.
- Silin, V. P. 1960, On the electromagnetic properties of a relativistic plasma, *Soviet Phys. JETP*, **11**(5), 1136.
- Slee, O. B., Bobra, A. D., and Alurkar, S. K. 1987, Spectral behavior of pulse width in pulsars, *Aust. J. Phys.*, **40**, 557–586.
- Smirnova, T. V. 1983, Instantaneous drift-rate dependence of pulsar subpulse energies, *Sov. Astron.*, **27**, 80–83.
- Smirnova, T. V. and Shabanova, T. V. 1986. Preprint No. 31, Lebedev Physical Institute, USSR, Academy of Sciences, Moscow (in Russian).
- Smirnova, T. V. and Shabanova, T. V. 1989, Interpulse radioemission of pulsars, in *Proc. FIAN*, volume 199, 68.
- Smirnova, T. V. and Shishov, V. I. 1989, The spatial structure of the emission sources of pulsar PSR 1133+16, *Astron. Zh.*, **15**, 443.
- Smirnova, T. V., Soglasnov, V. A., Popov, M. V., and Novikov, A. Y. 1986, Dual-frequency correlation of pulsar micropulses, *Sov. Astron.*, **30**, 51–56.
- Smith, A. and Pounds, K. A. 1977, X-ray flare in 3U 0833–45, the Vela pulsar, *Nature*, **265**, 121.
- Smith, F. G. 1974, Counter-rotation of polarization vectors in pulsars, *Mon. Not. R. astr. Soc.*, **167**, 43P–46P.
- Smith, F. G. 1977, *Pulsars*, (Cambridge: Cambridge University Press).
- Smith, F. G. 1986, The geometry of the emission from the Vela and Crab pulsars, *Mon. Not. R. astr. Soc.*, **219**, 729–736.
- Soglasnov, V. A., Popov, M. V., and Kuz'min, A. D. 1983. A statistical analysis of the fine-scale time structure of PSR 1133+16, *Sov. Astron.*, **27**(2), 169–173.
- Soglasnov, V. A., Smirnova, T. V., Popov, M. V., and Kuz'min, A. D. 1981, Statistical analysis of the temporal fine structure of the pulsar PSR 0809+74, *Sov. Astron.*, **25**, 442–445.
- Sonin, E. B. 1987, Vortex oscillations and hydrodynamics of rotating superfluids, *Reviews of Modern Physics*, **59**, 87–155.
- Spitzer, L. 1987, *Dynamical Evolution of Globular Clusters*. (Princeton: Princeton University Press).
- Srinivasan, G. 1989, Pulsars: their origin and evolution, *Astron. Ap. Rev.*, **1**, 209.
- Srinivasan, G., Bhattacharya, D., Muslimov, A. G., and Tsygan, A. I. 1990, A novel mechanism for the decay of neutron star magnetic fields, *Curr. Sci.*, **59**, 31.
- Staelin, D. H. and Reifenstein, III, E. C. 1968, Pulsating radio sources near the Crab Nebula, *Science*, **162**, 1481–1483.
- Staelin, D. H. and Sutton, J. M. 1970, Observed shapes of Crab Nebula radio pulses, *Nature*, **226**, 69–70.
- Stenflo, L., Shukla, P. K., and Yu, M. Y. 1985, Nonlinear propagation of electromagnetic waves in magnetized electron-positron plasmas, *Astrophys. Space Sci.*, **117**, 303.
- Stinebring, D. R. 1982, Pulsar polarization: Dual-frequency observations and the production of orthogonally polarized radiation. PhD thesis, Cornell University.
- Stinebring, D. R. and Condon, J. J. 1990, Pulsar flux stability and refractive interstellar scintillation, *Astrophys. J.*, **352**, 207.



- Stinebring, D. R., Cordes, J. M., Rankin, J. M., Weisberg, J. M., and Boriakoff, V. 1984a, Pulsar polarization fluctuations: I. 1408 MHz statistical summaries, *Astrophys. J. Supp. Series*, **55**, 247–277.
- Stinebring, D. R., Cordes, J. M., Weisberg, J. M., Rankin, J. M., and Boriakoff, V. 1984b, Pulsar polarization fluctuations: II. 800 MHz statistical summaries, *Astrophys. J. Supp. Series*, **55**, 279–288.
- Stinebring, D. R., Ryba, M. F., Taylor, J. H., and Romani, R. W. 1990, Cosmic gravitational-wave background: Limits from millisecond pulsar timing, *Phys. Rev. Lett.*, **65**, 285–288.
- Stollman, G. M. 1987, The radio luminosity of pulsars, *Astr. Astrophys.*, **171**, 152–156.
- Stoneham, R. J. 1981, Pulsar optical emission as amplified synchrotron emission, in *Pulsars, 13 Years of Research on Neutron Stars, IAU Symposium No. 95*, ed. W. Sieber and R. Wielebinski, (Dordrecht: D. Reidel), 235–238.
- Sturrock, P. A. 1971, A model of pulsars, *Astrophys. J.*, **164**, 529.
- Sturrock, P. A., Harding, A. K., and Daugherty, J. K. 1989, Cascade model of gamma-ray bursts, *Astrophys. J.*, **346**, 950–959.
- Sturrock, P. A., Petrosian, V., and Turk, J. S. 1975, Optical radiation from the Crab pulsar, *Astrophys. J.*, **196**, 73.
- Suleymanova, S. A. 1989, Linear polarization of averaged pulses at frequencies of 102.5, 60 and 40 MHz, *Proceedings of the Lebedev Institute*, **199**, 42.
- Suleymanova, S. A. and Izvekova, V. A. 1984, The detection of two modes in the radiation of the pulsar PSR0943+10 at the meter wave lengths, *Sov. Astron.*, **28**, 32–35.
- Sutton, J. M., Staelin, D. H., Price, R. M., and Weiner, R. 1970, Three pulsars with marching subpulses, *Astrophys. J.*, **159**, L89.
- Suvorov, E. V. and Chugunov, Y. V. 1975, Electromagnetic waves in a relativistic plasma with a strong magnetic field, *Astrophysics*, **11**, 203.
- Suvorov, E. V. and Chugunov, Y. V. 1980, Longitudinal waves in a relativistic plasma, *Sov. J. Plasma Phys.*, **6**, 69.
- Svetozarova, G. I. and Tsytoitch, V. N. 1962, On the space dispersion of relativistic plasma in magnetic field, *Izv. Vuzov. Radiofizika*, **5**, 658.
- Taam, R. E. and van den Heuvel, E. P. J. 1986, Magnetic field decay and the origin of neutron star binaries, *Astrophys. J.*, **305**, 235–245.
- Tademaru, E. 1973, On the energy spectrum of relativistic electrons in the Crab nebula, *Astrophys. J.*, **183**, 625.
- Taylor, J. H. and Dewey, R. J. 1988, Improved parameters for four binary pulsars, *Astrophys. J.*, **332**, 770–776.
- Taylor, J. H. and Huguenin, G. R. 1971, Observations of rapid fluctuations of intensity and phase in pulsar emissions, *Astrophys. J.*, **167**, 273.
- Taylor, J. H., Huguenin, G. R., Hirsch, R. M., and Manchester, R. N. 1971, Polarization of the drifting subpulses of pulsar 0809+74, *Astrophys. Lett.*, **9**, 205–208.
- Taylor, J. H. and Manchester, R. N. 1975, Observed properties of 147 pulsars, *Astron. J.*, **80**, 794.
- Taylor, J. H. and Manchester, R. N. 1977, Galactic distribution and evolution of pulsars, *Astrophys. J.*, **215**, 885–896.
- Taylor, J. H., Manchester, R. N., and Huguenin, G. R. 1975, Observations of pulsar radio emission: I. Total-intensity measurements of individual pulses, *Astrophys. J.*, **195**, 513.
- Taylor, J. H. and Stinebring, D. R. 1986, Recent progress in the understanding of pulsars, *Ann. Rev. Astr. Ap.*, **24**, 285–327.
- Taylor, J. H. and Weisberg, J. M. 1982, A new test of general relativity: Gravitational radiation and the binary pulsar PSR 1913+16, *Astrophys. J.*, **253**, 908–920.
- Taylor, J. H. and Weisberg, J. M. 1989, Further experimental tests of relativistic gravity using the binary pulsar PSR 1913+16, *Astrophys. J.*, **345**, 434–450.
- Thielheim, K. O. 1986, Cosmic ray particle acceleration in pulsar magnetospheres, in *The Origin and Evolution of Neutron Stars, Proc. IAU Symp. No. 125*, ed. D. J. Helfand and J. H. Huang, (Dordrecht: D. Reidel), 555.
- Thielheim, K. O. 1989, *Fundamentals of Cosmic Physics*, **13**, 357–399.
- Thielheim, K. O. and Tolan, M. 1990, to be published.
- Thompson, D. J. and Kniffen, D. A. 1989, Gamma-ray pulsars: Prospects and limitations, in *Proceedings of the Gamma Ray Observatory Science Workshop*, ed. W. N. Johnson, (Washington: Naval Research Laboratory), 4–150.
- Thorne, K. S. 1978, General relativistic astrophysics, in *Theoretical Principles in Astrophysics and Relativity*, ed. N. R. Lebovitz, W. H. Reid, and P. O. Vandervoort, (Chicago: Univ. of Chicago Press), 149–216.
- Thorsett, S. E. 1991, Frequency dependence of pulsar integrated profiles, *Astrophys. J.*, **377**, 263–267.
- Thorsett, S. E. and Stinebring, D. R. 1990, Polarimetry of millisecond pulsars, *Astrophys. J.*, **361**, 644.
- Trümper, J., Pietsch, W., Reppin, C., Voges, W., Staubert, R., and Kendziorra, E. 1978, Evidence for strong cyclotron line emission in the hard x-ray spectrum of Hercules X-1, *Astrophys. J.*, **219**, L105.
- Tsuruta, S. 1979, Cooling and heating of neutron stars. Current status, in *Proc. Intern. School of Physics, Enrico Fermi Course LXV, Varenna*, 635.
- Tsuruta, S. 1985, *Neutron stars: Current cooling theories and observational results*, (Munich: Max Planck Institut für Astrophysik). Preprint MPA.
- Tsuruta, S. 1987, Neutron star cooling, in *Proc. of 13th Texas Symp. on Rel. Astrophys.*, ed. M. Ulmer, (Singapore: World Scientific), 499–503.
- Tsytoich, V. N. and Kaplan, S. A. 1972, Relativistic plasma and pulsar emission mechanisms, *Nature Phys. Sci.*, **241**, 122.
- Turner, P. J. 1980, Low Dispersion Pulsars. PhD thesis, University of Tasmania.
- Twiss, R. Q. 1958, Radiation transfer and the possibility of negative absorption in radio astronomy, *Aust. J. Phys.*, **11**, 564.
- Ulyanov, O. M. 1989, in *Abstracts of XXII YERAC*, (Kharkov: ), 23.
- Ulyanov, O. M. 1990, An aberration, retardation and twist effect by the pulsars radio emission observation, *Kinematics and physics of the celestial bodies*, in press.
- Unno, W., Osaki, Y., Ando, H., and Shibahashi, H. 1979, *Nonradial Oscillations of Stars*, (Tokyo: University of Tokyo Press).
- Usov, V. V. 1987a, On two-stream instability in pulsar magnetospheres, *Astrophys. J.*, **320**, 333.
- Usov, V. V. 1987b, Two-stream instability and generation of Langmuir oscillations in pulsar magnetospheres, *Sov. Astr. Circ. No. 1431*.
- Ustimenko, B. Y. 1983, Investigations of radioemission of pulsars in the decametric wave-band. PhD thesis, Kharkov. (in Russian).

- van den Heuvel, E. P. J. 1984, Models for the formation of binary and millisecond radio pulsars, *J. Astrophys. Astr.*, **5**, 209–233.
- van den Heuvel, E. P. J., van Paradijs, J. A., and Taam, R. E. 1986, Evidence for an asymptotic lower limit to the surface dipole magnetic field strengths of neutron stars, *Nature*, **322**, 153–155.
- Van Horn, H. M. 1980, Micropulses, drifting subpulses and nonradial oscillations of neutron stars, *Astrophys. J.*, **236**, 899–903.
- van Paradijs, J. 1989, Gamma-ray bursts and decay of neutron star magnetic fields, *Mon. Not. R. astr. Soc.*, **238**, 45P.
- Van Riper, K. A. and Lamb, D. Q. 1981, Neutron star evolution and results from the Einstein X-ray observatory, *Astrophys. J.*, **244**, L13.
- Vasyliunas, V. M. 1975, theoretical models of magnetic field line merging, I, *Reviews of Geophysics and Space Physics*, **13**, 303–336.
- Vdovin, A. S., Ilyasov, Y. P., Oreshko, V. V., and Fedorov, Y. A. 1989, Time service for the pulsar time scale, *Time and frequency measurements, VNIIFTRI Transactions*.
- Verbunt, F., Wijers, R. A. M. J., and Burm, H. M. G. 1990, Evolutionary scenarios for the x-ray binary pulsars 4U1626–67 and Her X-1 and their implication for the decay of neutron star magnetic fields, *Astr. Astrophys.*, **234**, 195–202.
- Verga, A. D. and Fontan, C. F. 1985, Soliton turbulence in a strongly magnetized plasma: Application to the coherent radio-emission of pulsars, *Plasma Phys. and Controlled Fusion*, **27**, 19.
- Vitarmo, J. and Jauho, P. 1973, Pulsar radio emission mechanism, *Astrophys. J.*, **182**, 935–949.
- Vitkevitch, V. V. et al. 1976, Antenna-equipment complex BSA FIAN, *Radiofizika*, **19**, 1594. in Russian.
- Vivekanand, M. and Narayan, R. 1981, A new look at pulsar statistics — birthrate and evidence for injection, *J. Astrophys. Astr.*, **2**, 315–337.
- Vivekanand, M. and Radhakrishnan, V. 1980, The structure of integrated pulse profiles, *J. Astrophys. Astr.*, **1**, 119–128.
- Vladimirsky, B. M. 1989, Are there real types of the radiopulsars?, *Astron. Zh.*, **30**, 158.
- Voges, W., Atmanspacher, H., and Scheingraber, H. 1987, Deterministic chaos in accreting systems: Analysis of the x-ray variability of Hercules X-1, *Astrophys. J.*, **320**, 794.
- Volokitin, A. S., Krasnovsel'skikh, V. V., and Machabeli, G. Z. 1985, Waves in the relativistic electron-positron plasma of a pulsar, *Sov. J. Plasma Phys.*, **11**, 310.
- Wang, D., Wu, X., and Chen, H. 1988, A possible mechanism for core emission from radio pulsars, *Vistas in Astron. and Astrophys.*, **31**, 399.
- Webbink, R. F. 1985, Structure parameters of galactic globular clusters, in *Dynamics of Star Clusters, IAU Symposium No. 113*, ed. J. Goodman and P. Hut, (Dordrecht: D. Reidel), 541–577.
- Weekes, T. C. 1988, Very high energy gamma-ray astronomy, *Phys. Reports*, **160**, 3.
- Weiler, K. W. 1975, Measurement of the circular polarization in the Crab nebula at 1,415 MHz, *Nature*, **253**, 24.
- Weisberg, J. M., Romani, R. W., and Taylor, J. H. 1989, Evidence for geodetic spin precession in the binary pulsar PSR 1913+16, *Astrophys. J.*, **347**, 1030–1033.
- Wild, J. P., Smerd, S. F., and Weiss, A. A. 1963, Solar bursts, *Ann. Rev. Astr. Ap.*, **1**, 291.
- Winterberg, F. 1979, Radiative collapse of relativistic electron-positron plasma to ultra-high densities, *Phys. Rev.*, **A 19**, 1356.
- Wolszczan, A. 1980, A correlation of the  $P_3$  periods of pulsars with their magnetic fields and ages, *Astr. Astrophys.*, **86**, 7–10.
- Wolszczan, A. 1988. private communication.
- Wolszczan, A., Anderson, S., Kulkarni, S., and Prince, T. 1989. IAU circular 4880.
- Wolszczan, A. and Cordes, J. M. 1987, Interstellar interferometry of the pulsar PSR 1237+25, *Astrophys. J.*, **320**, L35–L39.
- Wolszczan, A., Cordes, J. M., and Nowakowski, L. A. 1991, in preparation.
- Wolszczan, A. and Prószyński, M. 1986, A cross-correlation analysis of subpulse drift in PSR 0809+74, PSR 1237+25 and PSR 1919+21, *Astrophys. J.*, **307**, 540–544.
- Woltjer, L. 1964, X-rays and type I supernova remnants, *Astrophys. J.*, **140**, 1309.
- Wright, G. A. and Fowler, L. A. 1981, Mode-changing and quantized subpulse drift-rates in pulsar PSR 2319+60, *Astr. Astrophys.*, **101**, 356–361.
- Wright, G. A., Sieber, W., and Wolszczan, A. 1986, Mode-switching, nulling and drifting subpulses in PSR 1112+50, *Astr. Astrophys.*, **160**, 402–405.
- Wu, X. J. and Manchester, R. N. 1992, The intensity distribution of the emission beam and the discussion of radio luminosity of pulsars, in *The Magnetospheric Structure and Emission Mechanisms of Radio Pulsars, IAU Colloquium No. 128*, ed. T. H. Hankins, J. M. Rankin, and J. A. Gil, (Zielona Góra, Poland: Pedagogical Univ. Press), 363–366.
- Wu, X. J., Qiao, G. J., and Xia, X. Y. 1985, The estimation of some important parameters of pulsars and the comparison between the RS model and observations, *Acta Astronomica Sinica*, **26**, 69–75.
- Wu, X. J., Qiao, G. J., Xia, X. Y., and Li, F. 1986, Estimation of some parameters of pulsars and their applications, *Astrophys. Space Sci.*, **119**, 101.
- Wu, X. J., Wu, F., Deng, G. X., Qiao, G. J., and Chen, J. H. 1982, Distribution of apparent beamwidths of pulsars and evolution of their magnetic inclination, *Chinese Astron. and Astrophys.*, **6**, 216.
- Wu, X. J., Yang, H. S., Qiao, G. J., and Deng, G. X. 1980, A statistical determination of the location of emission in pulsars based on a new classification, *Chinese Astron. and Astrophys.*, **4**, 220.
- Wunner, G., Paez, J., Herold, H., and Ruder, H. 1986, One-quantum annihilation of polarized electron-positron pairs in strong magnetic fields, *Astr. Astrophys.*, **170**, 179.
- Xia, Y. X., Qiao, G. J., Wu, X. J., and Hou, Y. Q. 1985, Inverse Compton Scattering in strong magnetic fields and its possible application to pulsar emission, *Astr. Astrophys.*, **152**, 93.
- Xie, R. R., Wu, X. J., Qiao, G. J., and Deng, G. X. 1985, The statistical study of emission characteristics and space distribution of the pulsars, *Publication of Yunnan Astronomical Observatory*, **2**, 28.
- Xilouris, K. M., Rankin, J. M., Seiradakis, J. H., and Sieber, W. 1991, Polarimetric observations of 20 weak pulsars at 1700 MHz, *Astr. Astrophys.*, **241**, 87–97.
- Yakovlev, D. G. and Urpi, V. A. 1980, Thermal and electrical conductivity in white dwarfs and neutron stars, *Sov. Astron.*, **24**, 303–310.
- Yakovlev, D. G., Urpin, V. A., and Haensel, P. 1990, Ohmic decay in magnetized cores of neutron stars, in *Proc.*

of Adriatic Working Party on Condensed Matter Properties of Neutron Stars, (Singapore: World Sci. Publ.).

- Yoon, P. 1990, Amplification of a high-frequency electromagnetic wave by a relativistic plasma, *Phys. Fluids*, **2B**, 867.
- Yu, M. Y. and Rao, N. N. 1985, Electromagnetic pulses in a strongly magnetized electron-positron plasma, *Phys. Rev.*, **A31**, 4012–4014.
- Yu, M. Y., Shukla, P. K., and Rao, N. N. 1984, Strong electromagnetic waves in a magnetized relativistic electron-positron plasma, *Astrophys. Space Sci.*, **107**, 327.
- Zapolsky, H. and Salpeter, E. E. 1969, The mass-radius relation for cold spheres of low mass, *Astrophys. J.*, **158**, 809.
- Zheleznyakov, V. V. 1967, A coherent synchrotron mechanism for radio emission from cosmic sources, *Soviet Phys. JETP*, **24**, 381.
- Zheleznyakov, V. V., Kocharovskii, V. V., and Kocharovskii, V. V. 1989, Polarization waves and superradiance in active media, *Sov. Phys. Usp.*, **32**, 835.
- Zheleznyakov, V. V. and Shaposhnikov, V. E. 1979, Absorption of curvature radiation, *Aust. J. Phys.*, **32**, 49.
- Zheleznyakov, V. V. and Suvorov, E. V. 1972, Results and problems in the investigation of the synchrotron instability, *Astrophys. Space Sci.*, **15**, 24.
- Zhu, Y. D. and Qiao, G. J. 1989, Theoretical fit for optical spectrum of the Crab pulsar, *Science in China, Series A*, **32**, 1483.