

## Index to Volume 31

Numbers prefixed by S are Astrophysical Supplement numbers

- Agarwal, S. B., and Bhatnagar, V. P.—  
Variations in the ultrasonic velocity within  
electrolytic solutions under  
ionic drift 567
- Ahmad, S., and Newman, D. J.—  
Finite ligand size and Sternheimer  
antiscreeing in lanthanide ions 421
- Amos, K., Morton, J., Morrison, I., and  
Smith, R.—  
Analyses of inelastic proton scattering to  
high spin states of unnatural parity 1
- Antenna, helical, radiation resistance in  
compressible electron plasma 71
- Astronomy*  
See Gamma ray astronomy,  
Radio astronomy
- Astrophysics*  
Approximations for relativistically  
streaming plasmas 523  
Equations for pulsar magnetospheres with  
particle inertia 455
- Barker, F. C.—  
Isospin mixing in light nuclei 27
- Barker, F. C., and Ferdous, Nasima—  
3<sup>+</sup> states of <sup>8</sup>Be 239
- Baxter, A. M.—  
See Spear, R. H. 377
- Bertram, W. K.—  
On the statistical theory of nuclear  
reactions 151
- Beryllium: 3<sup>+</sup> states of <sup>8</sup>Be 239
- Bhatnagar, V. P.—  
See Agarwal, S. B. 567
- Bhattacharyjee, D. K.—  
See Daftari, I. K. 201
- Bhattacharyya, D. P.—  
Effect of solar modulation on the low  
energy sea level muon spectrum near the  
geomagnetic equator 451
- Bird, J. R., Scott, M. D., Russell, L. H., and  
Kenny, M. J.—  
Analysis using ion induced  $\gamma$  rays 209
- Bismuth: neutron resonance spectroscopy  
on <sup>209</sup>Bi 47
- Blackwell, B. D.—  
See Cross, R. C. 61
- Blevin, H. A., Fletcher, J., and  
Hunter, S. R.—  
A Monte-Carlo simulation of the  
behaviour of electron swarms in hydrogen  
using an anisotropic scattering  
model 299
- Brennan, M. H., Jessup, B. L., and  
Jones, I. R.—  
An investigation of the composition of  
a hydrogen plasma using magnetoacoustic  
oscillations 447
- Buchdahl, H. A.—  
Remark on the polytrope of index 5 115
- Burman, R. R.—  
Flux conservation, magnetohydrodynamic  
and force-free approximations for  
relativistically streaming plasmas 523
- Burman, R. R., and Mestel, L.—  
Equations for pulsar magnetospheres  
with particle inertia 455
- Butler, P. H., Haase, R. W., and  
Wybourne, B. G.—  
Calculation of 6j symbols for the  
exceptional group E<sub>7</sub> 131
- Cane, H. V.—  
A 30 MHz map of the whole sky 561
- Caswell, J. L.—  
See Haynes, R. F. S45
- Cook, J. L.—  
See Lang, D. W. 215
- Copper, threshold effects in proton-induced  
reactions on 253
- Cosmic rays*  
Effect of solar modulation on sea level  
muon spectrum 451  
Extensive air showers and radio frequency  
electromagnetic fields 439  
Interpretation of size spectrum of cosmic  
 $\gamma$ -ray bursts 189
- Cosmology: axially symmetric stationary  
vacuum field equations in general  
relativity 427
- Cramer, N. F.—  
See Mathers, C. D. 171
- Cross, R. C., and Blackwell, B. D.—  
Ohmic heating and ionization measure-  
ments for an axial discharge in  
hydrogen 61

- Daftari, I. K., Bhattacharyee, D. K.,  
Naha, S. C., Roy, J., Ghosh, D. C.,  
Roy Chowdhury, A., and Roy, T.—  
Rapidity space distribution of multiparticle  
production by proton–nucleon collisions  
at 70 GeV/c 201
- Deo, B. B.—  
See Mahanty, J. 313
- Din, G. U.—  
 $^{18}\text{O}(p, \gamma)^{19}\text{F}$  and  $^{18}\text{O}(p, p'\gamma)^{18}\text{O}$  reactions  
below 3.50 MeV 267
- Enting, I. G.—  
Series analysis of a three-state Potts  
model with three-site interactions 383  
Some algebraic techniques for obtaining  
low-temperature series expansions 515
- Ferdous, Nasima—  
See Barker, F. C. 239
- Fewell, M. P.—  
See Spear, R. H. 377
- Fletcher, J.—  
See Blevin, H. A. 299
- Fluorine: properties of bound and  
resonant levels in  $^{19}\text{F}$  267
- Gamma ray astronomy: interpretation of  
size spectrum of  $\gamma$ -ray bursts in terms  
of idealized galactic distribution  
of sources 189
- Gaseous electronics: Monte-Carlo simulation  
of behaviour of electron swarms in  
hydrogen 299
- General relativity*  
Axially symmetric stationary vacuum  
field equations 427  
Dirac particles in Minkowski space with  
torsion 195  
Motion of spinless particles 105  
Nonstatic spherically symmetric isotropic  
solutions for perfect fluid 111
- George, E. P.—  
See Hora, H. 55
- Ghosh, D. C.—  
See Daftari, I. K. 201
- Grasers ( $\gamma$ -ray lasers), use of polarized  
nuclei in 55
- Gravitation*  
Gravitons from spinning rod 205  
Potential energy of polytrope of  
index 5 115  
Statistical mechanics of one-dimensional  
self-gravitating system 95
- Green, H. S.—  
Quantum electrodynamics of particles  
with arbitrary spin 219
- Gregory, L. J., and Klotz, A. H.—  
The motion of spinless particles in  
general relativity 105
- Haase, R. W.—  
See Butler, P. H. 131
- Hamada, T.—  
Energy loss by energetic test ions  
in a plasma 291
- Harvey, J. A.—  
See Musgrove, A. R. de L. 47
- Haynes, R. F., Caswell, J. L., and  
Simons, L. W. J.—  
A southern hemisphere survey of the  
galactic plane at 5 GHz S45  
Abstract to S45 351
- Heggie, J. C. P.—  
See Switkowski, Z. E. 253
- Heron, M. L., and Rose, R. J.—  
The accuracy of frequency standards  
disseminated by HF radio paths  
through the ionosphere 333
- Hinds, S.—  
See Spear, R. H. 377
- Hora, H., Wilson, G. V. H., and  
George, E. P.—  
A discussion of laser conditions and the  
use of polarized nuclei in grasers 55
- Hosking, R. J.—  
Energy principle for compressible  
dissipative magnetoplasma 347
- Hunter, S. R.—  
See Blevin, H. A. 299
- Hydrogen, Monte-Carlo simulation of  
electron swarms in 299
- Hydrogen, ohmic heating and ionization  
measurements for axial discharge in 61
- Iftikhar Ahmad, M.—  
See Saleem, M. 447
- Ionosphere: accuracy of frequency standards  
disseminated by HF radio paths 333
- Iron: photoneutron cross section of  $^{54}\text{Fe}$  471
- Jarvis, P. D.—  
A parafermion generalization of Poincaré  
supersymmetry 461
- Jeffery, E. A.—  
Component minimization of the  
Bargmann–Wigner wavefunction 137  
A Lagrangian with higher derivatives for  
arbitrary spin fields 353  
Commutation rules for generalized Pauli  
spin matrices 367

- Jessup, B. L.—  
     *See* Brennan, M. H. 477
- Johnson, C. H. J.—  
     Estimation of the equilibrium properties  
     of the simple *AB* alloy 319
- Jones, I. R.—  
     *See* Brennan, M. H. 477
- Joye, A. M. R.—  
     *See* Spear, R. H. 377
- Kean, D. C.—  
     *See* Spear, R. H. 377
- Kenny, M. J.—  
     *See* Bird, J. R. 209
- Klotz, A. H.—  
     *See* Gregory, L. J. 105
- Koo, W. K., and Tassie, L. J.—  
     Properties of the inelastic form factors  
     of the nucleus 9
- Lang, D. W., and Cook, J. L.—  
     Phase equivalent potentials in reaction  
     matrix theory 215
- Lead: maximum safe bombarding energies  
     and *B*(E3) values for  $^{204}\text{Pb}$ ,  $^{206}\text{Pb}$  and  
      $^{208}\text{Pb}$  377
- Mahanty, J., and Deo, B. B.—  
     Vibrations of finite linear chains of  
     molecules 313
- Mann, F. M.—  
     *See* Switkowski, Z. E. 253
- Mathers, C. D., and Cramer, N. F.—  
     The effect of ionization and recombination  
     on the resistivity of a partially ionized  
     plasma in a magnetic field 171
- Mestel, L.—  
     *See* Burman, R. R. 455
- Monaghan, J. J.—  
     The equilibrium statistical mechanics  
     of a one-dimensional self-gravitational  
     system 95
- Morrison, I.—  
     *See* Amos, K. 1
- Morton, J.—  
     *See* Amos, K. 1
- Murphy, George L.—  
     Gravitons from a spinning rod 205
- Musgrove, A. R. de L., and Harvey, J. A.—  
     Neutron resonance spectroscopy on  
      $^{209}\text{Bi}$  47
- Naha, S. C.—  
     *See* Daftari, I. K. 201
- Newman, D. J.—  
     The orbit-lattice interaction for lanthanide  
     ions. I. Determination of empirical  
     parameters 79  
     Parameterization schemes in solid state  
     physics 489  
     *See also* Ahmad, S. 421
- Norbury, J. W., Thompson, M. N.,  
     Shoda, K., and Tsubota, H.—  
     Photoneutron cross section of  $^{54}\text{Fe}$  471
- Nuclear physics*
- Calculation of *6j* symbols for *E*<sub>7</sub>  
     group 131
- Component minimization of Bargmann-  
     Wigner wavefunction 137
- Generalized Pauli spin matrices 367
- Inelastic proton scattering to high spin  
     states of unnatural parity 1
- Ion induced  $\gamma$  rays 209
- Isospin mixing in light  
     nuclei 27
- Lagrangian for arbitrary spin fields 353
- Maximum safe bombarding energies and  
     *B*(E3) values in reorientation experiments  
     with lead isotopes 377
- Neutron resonance spectroscopy on  
      $^{209}\text{Bi}$  47
- $^{18}\text{O}(p, \gamma)^{19}\text{F}$  and  $^{18}\text{O}(p, p'\gamma)^{18}\text{O}$  below  
     3.50 MeV 267
- Parafermion generalization of Poincaré  
     supersymmetry 461
- Phase equivalent potentials in *R*-matrix  
     theory 215
- Photoneutron cross section of  $^{54}\text{Fe}$  471
- $\pi^-p \rightarrow \eta n$  scattering at Fermilab  
     energies 447
- Properties of inelastic form factors 9
- Quantum electrodynamics of particles  
     with arbitrary spin 219
- Rapidity space distribution of multi-  
     particle production by proton-nucleon  
     collisions at 70 GeV/c 201
- Statistical theory of reactions 151
- S*-wave colour singlet states of  
     multiquarks 117
- 3<sup>+</sup> states of  $^8\text{Be}$  239
- Threshold effects in proton-induced  
     reactions on copper 253
- O'Connor, M. P., and Smrz, P. K.—  
     Dirac particles in the Minkowski space  
     with torsion 195

*Plasma physics*

- Analytic models of high- $\beta$  reversed field pinches 163
- Approximations for relativistically streaming plasmas 523
- Composition of hydrogen plasma from magnetoacoustic oscillations 477
- Discussion of laser conditions and use of polarized nuclei in grasers 55
- Effect of ionization and recombination on resistivity of partially ionized plasma in magnetic field 171
- Energy loss by energetic test ions 291
- Energy principle for compressible dissipative magnetoplasma 347
- Equations for pulsar magnetospheres with particle inertia 455
- Gyrosynchrotron and Langmuir-wave processes in solar corona 547
- Ohmic heating and ionization measurements for axial discharge in hydrogen 61
- Radiation resistance of helical antenna in compressible electron plasma 71
- Thermal instability of partially ionized medium 181, 459

Price, D. C.—

- Vibronic effects in Mössbauer spectra: the  $^{57}\text{Fe}$  quadrupole splitting in  $\text{FeCO}_3$  397

Quantum mechanics, defined on a finite-dimensional Hilbert space, formulation of 233

*Radio astronomy*

- Radiation generated by gyrosynchrotron and Langmuir-wave processes in solar corona 547
- Solar flare continuum events observed at metre wavelengths 533
- Southern hemisphere survey of galactic plane at 5 GHz S45
  - Abstract to S45 351
- 30 MHz map of whole sky 561

Rafique, M.—

- See Saleem, M. 447

Robinson, R. D.—

- A study of solar flare continuum events observed at metre wavelengths 533
- A discussion of radio wavelength radiation generated by gyrosynchrotron and Langmuir-wave processes 547

Rose, R. J.—

- See Heron, M. L. 333

Roy, J.—

- See Daftari, I. K. 201

Roy, T.—

- See Daftari, I. K. 201

Roy Chowdhury, A.—

- See Daftari, I. K. 201

Russell, L. H.—

- See Bird, J. R. 209

Saleem, M., Iftikhar Ahmad, M., and Rafique, M.—

- $\pi^-p \rightarrow \eta n$  scattering at Fermilab energies 447

Santhanam, T. S., and Sinha, K. B.—

- Quantum mechanics in finite dimensions 233

Scott, M. D.—

- See Bird, J. R. 209

Sharma, K. C.—

- See Sharma, R. C. 181, 459

Sharma, R. C., and Sharma, K. C.—

- Thermal instability of a partially ionized plasma 181
- Corrigendum 459

Shoda, K.—

- See Norbury, J. W. 471

Simons, L. W. J.—

- See Haynes, R. F. S45

Sinha, K. B.—

- See Santhanam, T. S. 233

Sivaprasad, K.—

- Extensive air showers and radio frequency electromagnetic fields 439

Sloane, A.—

- The axially symmetric stationary vacuum field equations in Einstein's theory of general relativity 427

Smith, R.—

- See Amos, K. 1

Smrz, P. K.—

- See O'Connor, M. P. 195

*Solid state physics*

- Algebraic techniques for obtaining low-temperature series expansions 515
- Finite ligand size and antiscreening in lanthanide ions 421
- Method for calculating normal modes of vibrating finite chains of linear molecules 313
- Orbit-lattice interaction for lanthanide ions 79
- Parameterization schemes 489
- Series analysis of three-state Potts model 383
- Simulation estimates of equilibrium properties of simple  $AB$  alloy 319
- Vibronic admixture effects in Mössbauer spectra 397

- Soni, K. R.—  
Radiation resistance of a helical antenna  
in a compressible electron plasma 71
- Spear, R. H., Zabel, T. H., Baxter, A. M.,  
Fewell, M. P., Hinds, S., Joye, A. M. R.,  
and Kean, D. C.—  
Determination of maximum safe bombard-  
ing energies and  $B(E3)$  values in  
reorientation experiments with  $^{204}\text{Pb}$ ,  
 $^{206}\text{Pb}$  and  $^{208}\text{Pb}$  377
- Sun: radio wavelength radiation generated  
by gyrosynchrotron and Langmuir-wave  
processes in corona 547
- Sun: study of flare continuum events  
at metre wavelengths 533
- Switkowski, Z. E., Heggie, J. C. P., and  
Mann, F. M.—  
Threshold effects in proton-induced  
reactions on copper 253
- Sy, W. N.-C.—  
Analytic models of high- $\beta$  reversed field  
pinches 163
- Tassie, L. J.—  
See Koo, W. K. 9
- Thompson, M. N.—  
See Norbury, J. W. 471
- Tsubota, H.—  
See Norbury, J. W. 471
- Ultrasonic velocity in electrolytic solutions  
under ionic drift 567
- Wilson, G. V. H.—  
See Hora, H. 55
- Wybourne, B. G.—  
 $S$ -wave colour singlet states of multiquark  
configurations 117  
See also Butler, P. H. 131
- Wyman, Max—  
Nonstatic spherically symmetric isotropic  
solutions for a perfect fluid in general  
relativity 111
- Yoshimori, M.—  
Interpretation of the size spectrum of  
cosmic  $\gamma$ -ray bursts in terms of an  
idealized galactic distribution of  
sources 189
- Zabel, T. H.—  
See Spear, R. H. 377

