

I. Education

- B.Sc. (Honors) Utkal University, India 1964
- M.Sc. Delhi University, India 1966
- Ph.D. University of Rochester 1969

II. Experience in Higher Education

- 1969-1971 SUNY at Stony Brook, Research Associate
- 1971-1974 University of Maryland, Research Associate
- 1974-1976 City College of CUNY, Assistant Professor
- 1976-1980 City College of CUNY, Associate Professor
- 1980-1981 Max-Planck-Inst. fur Physik, Visiting Professor
- 1983- University of Maryland, Professor

III. Experience Other than Higher Education

- 1974 (summer) Brookhaven National Laboratory, Visiting Scientist
- 1976 (summer) CERN, Scientific Associate
- 1977 (summer) Brookhaven National Laboratory, Visiting Scientist
- 1978 (summer) Institute of Physics, Visiting Scientist
- 1979 (summer) SLAC, Stanford, Visiting Scientist
- 1981 (Apr-Aug) University of Geneve and CERN, Visiting Scientist
- 1983 (July) Los Alamos Scientific Library, New Mexico, Visiting Scientist
- 1984 (July) Virginia Polytechnic Institute, Blacksburg, Visitor
- 1985 (June-July) CERN, Scientific Associate

- 1986 (August) Brookhaven National Laboratory, Visiting Scientist
- 1991 (August) Los Alamos National Lab, Visiting Scientist
- 1995 (September) Lawrence Berkeley Laboratory, Visiting Scientist

IV. Academic and Professional Honors

- Gold Medal Winner and Best Graduate in 1964, B. Sc. and B.A. Examinations, Utkal University, India.
- Member, Sigma Xi.
- Recipient of 1968 Kodak Prize at the University of Rochester for best graduate work.
- Alexander von Humboldt Foundation Fellowship (1980-81)
- Fellow - American Physical Society (1980-).
- Fellow - Indian National Academy of Sciences (1987-)
- Awarded Distinguished Faculty Research Fellowship by the University of Maryland during the year 1995-96.
- Presented Distinguished Scientist of 2000 award by the American Chapter of the Indian Physicists Association.
- Selected "Distinguished Scholar-Teacher" for the year 2001-2002 by the University of Maryland.

VI. Professional Services

- Member, Organizing Committee of International Workshop on "Superstrings, Cosmology and Composteness", held in College Park, Maryland, March 1987.
- Member, Organizing Committee of the International Conference on "Physics Beyond the Standard Model", held in Valencia, Spain, October 1991.
- Member, Organizing Committee for the International Conference on "After the First Three Minutes", NASA, Graanbelt, Maryland, October 1991.
- Member, Organizing Committee of the International Workshop on "New Physics with New Experiments", Kazimierz, Poland, May 1993, May 1994.

- Member, Organizing Committee of the International Conference on "Physics Beyond the Standard Model", Valencia, October 1993.
- Member, Organizing Committee of the Workshop on "Low Energy Weak Interactions", Dubna, Russia, October 1994.
- Chair, Organizing Committee of "SUSY96", College Park, May, 1996.
- Co-chair, Organizing Committee of the International workshop on "Baryon and Lepton Number Violation", held in Italy, 1997.
- Member, International Advisory Committee, SUSY97, Philadelphia, May, 1997.
- Member, International Advisory Committee, Beyond97, Ringberg, June (1997).
- Member, International Advisory Committee, NANP 97, Dubna, June (1997).
- Member, International Advisory Committee, WEIN98, Santa Fe, New Mexico, July (1998).
- Cochair, Organizing committee, Workshop on Baryon instability, Oak Ridge, Tennessee, March (1996).
- Convener of Neutrino session, European Physical Society meeting held in Jerusalem, August (1997).
- Lecturer, TASI97, Annual International Summer Institute for advanced researchers, Boulder, Colorado, June (1997).
- Member, International Advisory Committee, SUSY99, Fermilab, June, 1999.
- Member, International Advisory Committee, SUSY2K, CERN, Geneva, July, 2000.
- Member, International Advisory Committee, COSMO99, Trieste, Italy, September, 1999.
- Member, International Advisory Committee, COSMO2000, Korea, September, 2000.
- Member, International Advisory Committee, "Beyond Four Dimensions" Trieste, Italy, September, 2000.
- Member, International Advisory committee, "SUSY, 2002", DESY, Germany, June 2002.
- Member, International Advisory committee, "SUSY, 2003", University of Arizona, Tucson; June, 2003.

VII. Books Published

1. **Gauge Theories of Fundamental Interactions**, (with C.S. Lai), World Scientific, 1981.
2. **Unification and Supersymmetry**, Springer-Verlag, First Edition, 1986; Second Edition, 1991; third edition, October, 2002.
3. **Massive Neutrinos in Physics and Astrophysics**, (with P.B. Pal), World Scientific, 1991; Second edition (1998).
4. **Superstrings, Cosmology and Composite Structure**, (co-editor with S.J. Gates), World Scientific, 1987.
5. **SUSY 96: Theoretical Perspectives and Experimental Outlook**, (co-editor with A. Rasin), North Holland, 1996.

VIII. Chapters written for books

1. **CP violation and left-right symmetry** in *CP Violation* ed. C. Jarlskog (World Scientific, 1988) p. 384.
2. **CP violation and supersymmetry** in *CP Violation* ed. C. Jarlskog (World Scientific, 1988) p. 436.
3. **Neutrino masses in left-right, SO(10) and supersymmetric models** in *Neutrinos* ed. H. Klapdor, (Springer-verlag, 1988).
4. **Supersymmetric Grand Unification** in *Supersymmetry, Superstrings and Supercolliders* ed. J. Bagger (World Scientific, 1998).
5. **Theories of neutrino masses and mixings** in *Current aspects of neutrino physics* ed. D. Caldwell (Springer-verlag, 2000).
6. **Supersymmetry and Particle physics** in *Quantum field theory at the millennium* ed. A. Mitra (Indian National Academy of Sciences, 2000).
7. **Nature of massive neutrinos** (with B. Kayser) in *Current aspects of neutrino physics* ed. D. Caldwell (Springer-Verlag, 2000).

IX. Member, Editorial Board

- **Member, Editorial Board of Progress in Particles and Nuclear Physics** (from 1995- 1998), North Holland.
- **Member, Editorial Board of Georgian Journal of Physics**, (since 1998-).
- **Member, Editorial Borad of New Journal of Physics**, IOP publication.

Articles in standard journals

1. $K_L^0 \rightarrow \mu^+ \mu^-$ Decay, $K_L^0 - K_S^0$ Mass Difference and Weak Interaction Cut-off (with R. E. Marshak and J. S. Rao), *Phys. Rev. Lett.* **20**, 1081 (1968).
2. Second Order Weak Processes and Weak Interaction Cut-off, (with R. E. Marshak and J. S. Rao), *Phys. Rev.*, **171**, 1502 (1968).
3. Sumrules for Virtual Compton Scattering on Pions, (with S. Okubo and R. Chanda) *Phys. Rev.* **170**, 1344 (1968).
4. Anomalous Magnetic Moment of A_1 , (with V. S. Mathur) *Phys. Rev.* **178**, 1688 (1968).
5. Spectral Function Sumrules for Three Point Functions and Its Application to $\pi^0 \rightarrow 2\gamma$ Decay, (with S. Okubo and R. Chanda) *Nuovo Cimento* **58 A**, 589 (1968).
6. Dispersion Sum Rules, Interference Model, Duality and p-n Mass Difference, (with S. Okubo and J. P. Hsu), *Phys. Rev.* **181**, 2011 (1969).
7. Leading Divergences in Nonleptonic Decays, (with P. Oleson), *Phys. Rev.* **179**, 1417 (1969).
8. Finite Energy Sum Rules and Non-linearly Rising Regge Trajectories, *Phys. Rev. Lett.* **22**, 735 (1969).
9. Gross CP Violation in Strong Cubic IVB Model, (with R. E. Marshak, S. Okubo and J. S. Rao), *Nucl. Phys. B* **11**, 253 (1969).
10. Pomeranchuk Theorem and Results from Serpukov and Satellite Experiments, (with D. S. Narayan), *Nuovo Cimento Lett.* **4**, 535 (1970).
11. On $\eta \rightarrow 3\pi$ Decay Puzzle, *Nuovo Cimento*, **2 A**, 707 (1971).
12. Feynman Rules for the Yang-Mills Field: A Canonical Quantization Approach I, *Phys. Rev. D* **4**, 378 (1971).
13. Feynman Rules for the Yang-Mills Field: A Canonical Quantization Approach II, *Phys. Rev. D* **4**, 1007 (1971).
14. Feynman Rules for the Yang-Mills Field: A Canonical Quantization Approach III, *Phys. Rev. D* **4**, 2215 (1971).
15. One Loop Diagrams in Yang-Mills Theory, *Phys. Rev. D* **5**, 417 (1972).
16. Renormalizable Model of Weak and Electromagnetic Interaction with CP Violation, *Phys. Rev. D* **6**, 2023 (1972).

17. **Mellin Transform Analysis of Light Cone structure and Scaling in Deep Inelastic Electron Scattering**, (with O. W. Greenberg and D. Bhau-mik) *Phys. Rev. D* **6**, 2969 (1972).
18. **Spontaneously Broken Weak and Electromagnetic Symmetry and Three Triplet Model for Hadrons**, *Nuovo Cimento Lett.* **6**, 53 (1973).
19. **Effective Weak Interaction Cut-off of Electromagnetic Radiative Cor-rections in Unified gauge theories**, (with P. Vinciarelli), *Phys. Rev. Lett.* , **30**, 804 (1973).
20. **On the Cancellation of Infinities in Second Order Radiative Correc-tions in Unified Gauge Theories**, (with P. Vinciarelli), *Phys. Rev.* , **d 8**, 481 (1973).
21. **CP- Violation Through Phase Angles in Weak Currents and the Re-lation $\eta_{+-} = \eta_{00}$** , (with J. C. Pati), *Phys. Rev.* , **D 8**, 2317 (1973).
22. **Gauge Theories Based on Quarks and $\eta \rightarrow 3\pi$ Problem**, *Phys. Rev.* , **D 8**, 4212 (1973).
23. **Canonical Estimation of Weak Radiative Corrections in Unified Gauge Theories and Selection Rules**, (with J. C. pati and P. Vinciarelli), *Phys. Rev. D* **8**, 3652 (1973).
24. **Finiteness of Radiative Corrections to Semilaptonic Decays in Unified Gauge Theories**, (with S. Sakakibara), *Phys. Rev. D* **9**, 429 (1974).
25. **Gauge Model for Chiral Symmetry Breaking and Muon-Electron Mass ratio**, *Phys. Rev. D* **9**, 3461 (1974).
26. **Scattering of gauge Bosons in Sixth Order and Non-Renormalizability of Massive Yang-Mills Theories**, (with S. sakakibara and J. Sucher), *Phys. Rev. D* **10**, 1844 (1974).
27. **Left-Right Gauge Symmetry and an Iso-Conjugate Model of CP Vi-olation**, (with J. C. Pati), *Phys. Rev. D* **11**, 566 (1975).
28. **A Natural Left-Right Symmetry**, (with J. C. Pati), *Phys. Rev. D* **11**, 2556 (1975).
29. **A Suoerweak Model of CP Violation in Unified Gauge Theories**, (with J. C. Pati and L. Wolfenstein), *Phys. Rev. D* **11**, 3319 (1975).
30. **Exact Left-Right symmetry and Spontaneous Breakdown of parity**, (with G. Senjanović), *Phys. Rev. D* **12**, 1502 (1975).
31. **Comment on the interpretation of the J-particle as a Charm-anti-charm Bound State**, (with T. Hagiwara) *Phys. Rev. D* **13**, 150 (1976).

32. **Gauge Model with Right-Handed Currents and Neutrino Interactions and $K_L - K_S$ Mass Difference**, (with G. Branco and T. Hagiwara), *Phys. Rev. D* **13**, 104 (1976).
33. **Unified Gauge Theories with Right-Handed Currents and Heavy fermions**, *Phys. Rev. D* **13** 113 (1976).
34. **Color as a Classification Symmetry and Quark Charges**, (with A. Salam and J. C. Pati), *Phys. Rev. D* **13**, 1733 (1976).
35. **Nonleptonic Hyperon Decays in Models with Right-Handed Currents**, (with G. Branco), *Phys. Rev. Lett.* **36**, 926 (1976).
36. **Essential Restriction on the Symmetry of a Unified Theory for the case of Massive Gluons**, (with J. C. Pati), *Phys. Lett. B* **63**, 204 (1976).
37. **Implications for Gauge Theories if Search for Parity Violation in Atomic Physics fails**, (with D. P. Sidhu), *Phys. Rev. Lett.* **38**, 667 (1977).
38. **Gauge Theories of Weak Interactions with Left-Right Symmetry and the Structure of Neutral Currents**, (with D. P. Sidhu), *Phys. Rev. D* **16**, 2843 (1977).
39. **Manifest Left-Right Symmetry and Its Experimental Consequences**, (with M. A. B. Beg, R. Budny and A. Sirlin), *Phys. Rev. Lett.* **38**, 1252 (1977).
40. **$U(1) \times SU(4)_L \times SU(4)_R$ Based Weak-Electromagnetic Synthesis with Manifest Left-Right Symmetry**, (with M. A. B. Beg, A. Sirlin and H. S. Tsao), *Phys. Rev. Lett.* **39**, 1054 (1977).
41. **Symmetry Breaking and Naturalness of Parity Conservation in Weak Neutral Currents in Left-Right Symmetric theories**, (with F. E. Paige and D. P. Sidhu), *Phys. Rev. D* **17**, 2462 (1978).
42. **Cabibbo Angle, CP Violation and Quark Masses**, (with G. Senjanović), *Phys. Lett. B* **73**, 176 (1978).
43. **CP Violation in Left-Right Symmetric Theories and Absolutely Stable Hadrons**, (with D. P. Sidhu), *Phys. Rev. D* **17**, 1876 (1978).
44. **Properties of Neutral Gauge Bosons in Weak Interaction theories with Natural Parity Conservation**, (with D. P. Sidhu), *Phys. Rev. D* **18**, 856 (1978).
45. **Are There Limits on Gauge Hierarchies**, (with G. Senjanović), *Hadronic Journal*, **1**, 903 (1978).
46. **Natural Suppression of Strong P and T Non-Invariance**, (with G. Senjanović), *Phys. Lett.* **79 B**, 283 (1978).

47. **Weak Interaction of the Bottom Quark** (with G. Branco), *Phys. Rev. D* **18**, 4246 (1978).
48. **Higher Order Induced Axial Vector Isoscalar Neutral Currents in gauge Theories**, (with G. Senjanović), *Phys. Rev. D* **19**, 2165 (1979).
49. **Soft CP Violation at High temperatures**, (with G. Senjanović), *Phys. Rev. Lett.* **42**, 1651 (1979).
50. **Effect of Flavor Mixing on Proton Decay in SU(5) Grand Unified Theories**, *Phys. Rev. Lett.* **43**, 893 (1979).
51. **Broken Symmetries at High temperature**, (with G. Senjanović), *Phys. Rev. D* **20**, 3390 (1979).
52. **High Temperature Behaviour of Gauge Theories**, (with G. Senjanović), *Phys. Lett.* **89B**, 57 (1979).
53. **A Solution to the Strong CP Problem in SU(5) Model**, (with D. Wyler), *Phys. Lett* **89B**, 181 (1979).
54. **SO(2N) Grand Unification in SU(N) Basis**, (with B. Sakita), *Phys. Rev. D* **21**, 1062 (1980).
55. **Cosmological Baryon Production in a Superconducting Early Universe**, (with G. Senjanović), *Phys. Rev. D* **21**, 3470 (1980).
56. **Problem of Fermion Generations in Grand Unified Theories**, (with J. Chakrabarti and M. Popović), *Phys. Rev. D* **21**, 3212 (1980).
57. **Neutrino Mass and Spontaneous Parity Violation**, (with G. Senjanović), *Phys. Rev. Lett.* **44**, 912 (1980).
58. **Quark Lepton Symmetry and B-L as the U(1) Generator**, (with R. E. Marshak), *Phys. Lett.* **91 B**, 222 (1980).
59. **Local B-L Symmetry of Electroweak Interactions, Majorana neutrinos and Neutron-Anti-Neutron Oscillations**, (with R. E. Marshak), *Phys. Rev. Lett.* **44**, 1316 (1980).
60. **Phenomenology of Neutron Oscillations**, (with R. E. matshak), *Phys. Lett.* **94B**, 183 (1980).
61. **Neutrino Masses in gauge Models with Spontaneous Parity Violation**, (with G. Senjanović), *Phys. Rev. D* **23**, 165 (1981).
62. **Are There Real Goldstone Bosons Associated with Spontaneous Breaking of lepton Number ?**, (with Y. Chikashige and R. D. Peccei), *Phys. Lett.* **98B**, 265 (1981).

63. **Spontaneously Broken Lepton Number Symmetry and Cosmological Constraints on Neutrino Masses**, (with Y. Chikashige and R. D. Peccei), *Phys. Rev. Lett.* **45**, 1926 (1980).
64. **Baryon Non-conservation at Intermediate Mass Scale and Cosmological Matter-Anti-Matter Asymmetry**, (with A. Masiero), *Phys. Lett.* **103 B**, 343 (1981).
65. **Fermion-Fermion Condensates and CP Violation**, (with A. Masiero and R. D. Peccei), *Nucl. Phys.* **B 192**, 66 (1981).
66. **Compositeness and Left-Right Symmetric Electroweak Model without Broken Gauge Interaction**, (with R. Barbieri and A. masiero), *Phys. Lett.* **105B**, 369 (1981).
67. **Aspects of a Superlight Grand Unified Axion**, (with R. Barbieri, D. Nanopoulos and D. Wyler), *Phys. Lett.* **107 B**, 80 (1981).
68. **Proton Decay and Neutron Oscillation in the Rishon Model** (with H. harari and N. Seiberg), *Nucl. Phys.* **B209**, 174 (1982).
69. **Spontaneously Broken Global Baryon Number Symmetry**, (with R. barbieri), *Zeit. fur Physik C* **11**, 175 (1981).
70. **Asymptotic Freedom Constraints on Flavor Grand Unification**, (with M. Popovic), *Phys. Rev. D* **24**, 719 (1980).
71. **Majorana Neutrinos as Low Energy Tests of Electroweak Models**, (with Riazuddin and R. E. marshak), *Phys. Rev. D***24**, 1310 (1981).
72. **A New Contribution to Neutrinoless Double Beta Decay**, (with J. D. Vergados), *Phys. Rev. Lett.*, **47**, 1713 (1981).
73. **An Effective Electroweak Lagrangian for Composite Models**, (with R. Barbieri), *Phys. Rev. D* **25**, 2419 (1982).
74. **CP Violation in Particle Physics and Cosmology- Is There Any Connection?**, (with A. masiero and R. D. Peccei), *Phys. Lett.* **108B**, 111 (1981).
75. **Maximal Grand Unification, Gauge Hierarchies and Baryon Non-Conservation**, (with M. Popovic), *Phys. Rev.* **D25** , 3012 (1982).
76. **Hydrogen-Antihydrogen Oscillations and Spontaneous Breaking of Global B-L Symmetry**, (with G.Senjanovic), *Phys. Rev. Lett.* **49**, 7 (1982).
77. **Spontaneous Breaking of Global B-L Symmetry and Matter Anti-Matter Oscillation in Grandunified Theories**, (with G.Senjanovic), *Phys. Rev. D***27**, 254 (1983).

78. **Higgs Boson Effects in Grand Unified Theories**, (with G.Senjanovic), *Phys. Rev.* **D27**, 1601 (1983).
79. **Implications of Supersymmetric SO(10) Grand Unification**, (with C.S.Aulakh), *Phys. Rev.* **D28**, 217 (1983).
80. **Neutrino as Supersymmetric Partner of the Majoron**, (with C.S.Aulakh), *Phys. Lett.* **119B**, 136 (1982).
81. **Asymptotic Freedom Constraints on $\sin \theta$ in Nearby Composite Models**, (with R.Barbieri), *Phys. Lett.* **120B**, 195 (1983).
82. **Supersymmetry and Calculation of Neutrino Mass**, (with C.S.Aulakh), *Phys. Lett.* **121B**, 147 (1983).
83. **A Solution to the Strong CP-Problem in N=1 Supergravity**, (with S.Ouvry), *Phys. Lett.* **126B**, 329 (1983).
84. **Effective Potentials in Different Supergravities**, (with C.S.Aulakh and M.Kaku), *Phys. Lett.* **126B**, 183 (1983).
85. **Superlight Axion and Neutrino Masses**, (with G.Senjanovic), *Zeit.fur Phys.* **C17**, 53 (1983).
86. **Strangeness Changing Processes and the Limit on the Right-Handed Gauge Boson Mass**, (with G.Senjanovic and M.D.Tran), *Phys. Rev.* **D28**, 546 (1983).
87. **Weak Interaction Symmetry and Generation Structure in a Quasi-Nambu-Goldstone Fermion Picture of Quarks and Leptons**, (with O.W.Greenberg and M.Yasue), *Phys. Lett.* **128B**, 65 (1983).
88. **Geometric Hierarchy in an SO(10) x U(1)PQ Model**, (with S.Kalara), *Phys. Rev.* **D28**, 2241 (1983).
89. **Supersymmetric Grandunification and Neutron-Anti-neutron Oscillation**, (with S.Kalara), *Phys. Lett.* **129B**, 57 (1983).
90. **Determination of the Number of Generations from Color Flavor Symmetry**, (with O.W.Greenberg and M.Yasue), *Phys. Rev. Lett.* **51**, 1737 (1983).
91. **A Simple Solution to the Strong CP Problem**, (with G.Senjanovic), *Zeit.fur Phys.* **C20**, 365 (1983).
92. **Interplay of 't Hooft Anomaly Constraints and Nambu-Goldstone Phenomena in Supersymmetric Composite Models**, (with O.W.Greenberg and M.Yasue), *Nucl. Phys.* **B237**, 185 (1984).

93. **Decoupling of Parity and SU(2)_R Breaking Scales: A New Approach to Left-Right Symmetric Models**, (with D.Chang and M.K.Parida), *Phys. Rev. Lett.* **52**, 1072 (1984).
94. **A New Approach to Left-Right Symmetry Breaking in Unified Gauge Theories**, (with D.Chang and M.K.Parida), *Phys. Rev.* **D30**,1052 (1984).
95. **New Mechanism for Cosmological Baryon Generation in SO(10) Grandunified Models**, (with D.Chang and M.K.Parida), *Phys. Lett.* **142B**, 55 (1984).
96. **Muon Polarization in K Decay as a Test of CP-Violation Models**, (with D.Chang), *Phys. Rev.* **D30**, 2005 (1984).
97. **Possibilities for Finite Grandunification with N=2 Supersymmetry**, (with S.Kalara, D.Chang, and A.Gangopadhyaya), *Phys. Lett.* **145B**, 323 (1984).
98. **Signatures of Lepto-Quark Higgs Bosoms in Lepton and Proton Experiments**, (with G.Segre and L.Wolfenstein), *Phys. Lett.* **145B**, 433 (1984).
99. **Connection Between Cosmological Matter-Anti-Matter Asymmetry and CP-Non-Conservation in K 2 Decays**, (with D.Chang and G.Senjanovic), *Phys. Rev. Lett.* **53**, 1419 (1984).
100. **Constraints on Composite Models Due to Rare Processes**, (with O.W.Greenberg and S.Nussinov), *Phys. Lett.* **148B**, 465 (1984).
101. **Experimental Tests of New SO(10) Grand Unification**, (with D.Chang, J.Gipson, R.E.Marshak, and M.K.Parida), *Phys. Rev.* **D31**, 1718 (1984).
102. **A Model for Neutrino Decays**, (with A.Kumar), *Phys. Lett.* **150B**, 191 (1985).
103. **Spontaneous CP-Violation in Z₄-model of Flavor Mixing**, (with G.Branco), *Nucl. Phys.* **B249**, 733 (1985).
104. **SO(18) Unification of Fermion Generations**, (with D.Chang), *Phys. Lett.* **158B**, 323 (1985).
105. **"CP-Violation and b-quark Decay"**, *Phys. Lett.* **159B**, 374 (1985).
106. **Grandunification of Three Light Generations**, (with D.Chang and T.Hubsch), *Phys. Rev. Lett.* **55**, 673 (1985).
107. **On a Mechanism for Small Neutrino Mass**, (with D.Chang), *Phys. Rev.* **D32**, 1248 (1985).
108. **Could Cyg X-3 Muons Indicate a Light Supersymmetric Particle?**, (with S.Nussinov and J.W.Valle), *Phys. Lett.* **165B**, 417 (1985).

109. **Spontaneous Breaking of Parity as the Origin of Isospin Breaking**, (with D.Chang, P.Pal, and J.C.Pati), *Phys. Rev. Lett.* **55**, 2756 (1985).
110. **Could Goldstone Bosons Generate an Observable $1/R$ Potential?**, (with D.Chang and S.Nussinov), *Phys. Rev. Lett.* **55**, 2835 (1985).
111. **A Mechanism for Understanding the Small Neutrino Mass in Superstring Theories**, *Phys. Rev. Lett.* **56**, 561 (1986).
112. **Neutrino Mass and Baryon Number Non-Conservation in Superstring Models**, (with J.W.F.Valle), *Phys. Rev.* **D34**, 1642 (1986).
113. **Solar Neutrino Oscillations from Superstrings**, (with J.W.F.Valle), *Phys. Lett.* **177B**, 47 (1986).
114. **Maximal CP-Violation and Left-Right Symmetry**, (with M.Gronau), *Phys. Lett.* **168B**, 248 (1986).
115. **Z_4 -Symmetry and the Fourth Generation**, (with P.K.Mohapatra), *Phys. Rev.* **D34**, 231 (1986).
116. **Grandunification of Fermion Generations: Neutrino Masses and Cosmological Constraints.**, (with A.Kumar and D.Chang), *Phys. Rev.* **D33**, 1777 (1986).
117. **Implications of E_6 -Grandunification**, (with P.K.Mohapatra and P.Pal), *Phys. Rev.* **D33**, 2010 (1986).
118. **Constrained Fermionic Systems and its Equivalence with the Free Parafermionic Theory and Nonlinear Sigma Model**, (with D.Chang and A.Kumar), *Zeit. fur Phys.* **C32**, 417 (1986).
119. **A Superstring Inspired Low Energy Electroweak Model**, (with D.Chang), *Phys. Lett.* **175B**, 304 (1986).
120. **Limits on the Mass of the Right-Handed Neutrino**, *Phys. Rev.* **D34**, 909 (1986).
121. **New Contributions to Neutrinoless Double Beta Decay in Supersymmetric Theories**, *Phys. Rev.* **D34**, 3457 (1986).
122. **Indications of a Light Scalar in Left-Right Symmetric Models**, (with P.Pal), *Phys. Lett.* **179B**, 105 (1986).
123. **Production and Detection at SSC of Higgs Bosons in Left-Right Symmetric Models**, (with J.Gunion, B.Kayser, N.Deshpande, F.Olness, J.Grifols, A.Mendez, and P.Pal), *Proceedings of Snow Mass-86*, ed. R.Gustafson.
124. **Solar Neutrino Oscillations from Superstrings**, (with J.W.F.Valle), *Phys. Lett.* **177B**, 47 (1986).

125. **Range of Feeble Forces from Higher Dimensions**, (with S.M.Barr), *Phys. Rev. Lett.* **57**, 3129 (1986).
126. **Late Baryogenesis in Superstring Models**, (with J.W.F.Valle), *Phys. Lett.* **186B**, 303 (1987).
127. **CP-Violation and Yukawa Couplings in Superstring Models: The Four Generation Example**, (with S.Kalara), *Phys. Rev.* **D35**, 3143 (1987).
128. **Small and Calculable Dirac Neutrino Mass**, (with D.Chang), *Phys. Rev. Lett.* **58**, 1600 (1987).
129. **Phenomenology of a Four Generation Superstring Model**, (with S.Kalara), *Zeit. fur Phys.* **C37**, 395 (1987).
130. **A Model for Dirac Neutrino Masses and Mixings**, *Phys. Lett.* **198B**, 69 (1987).
131. **Possible Non-Conservation of Electric Charge**, *Phys. Rev. Lett.* **59**, 1510 (1987).
132. **Local Quantum Field Theory of Possible Violation of Pauli Principle**, (with O.W.Greenberg), *Phys. Rev. Lett.* **59**, 2507 (1987).
133. **Model for Stech Mass Matrix for Quarks**, (with A.Kagan and P.Pal), *Phys. Rev. Lett.* **59**, 2005 (1987).
134. **Yukawa Couplings and Phenomenology of a Three Generation Superstring Model**, (with S.Kalara), *Phys. Rev.* **D36**, 3474 (1987).
135. **Yukawa Couplings and Phenomenology of a Three Generation Superstring Model with a Different Complex Structure**, (with S.Kalara and P.K.Mohapatra), *Phys. Rev.* **D37**, 3284 (1988).
136. **Limit on the Magnetic Moment of the Neutrino from Supernova 1987a Observations**, (with R.Barbieri), *Phys. Rev. Lett.* **61**, 27 (1988).
137. **Quark Mixings and Mass Hierarchy from Radiative Corrections**, (with B.Balakrishna and A.Kagan), *Phys. Lett.* **205B**, 345 (1988).
138. **Neutrinoless Double Beta Decay with Double Majoron Emission**, (with E.Takasugi), *Phys. Lett.* **211B**, 192 (1988).
139. **Magnetic Moment of the Neutrino and its Implication for Neutrino Signal for SN1987A**, (with R.Barbieri and T.Yanagida), *Phys. Lett.* **213B**, 69 (1988).
140. **Natural See Saw Mechanism eV-KeV-MeV Type Neutrino Spectrum and Cosmology**, (with P.Pal), *Phys. Rev.* **D38**, 2226 (1988).

141. **Radiative Fermion Masses from New Physics at TeV Scale**, (with B. Balakrishna), *Phys. Lett.* **216B**, 225 (1989).
142. **A Neutrino with a Large Magnetic Moment and a Naturally Small Mass**, (with R. Barbieri), *Phys. Lett.* **218B**, 225 (1989).
143. **Limits on Right-Handed Currents from SN1987A Observations**, (with R. Barbieri), *Phys. Rev.* **D39**, 1378 (1989).
144. **Constraints on Decaying Right-Handed Majorana Neutrino from SN1987A Observations**, (with S. Nussinov), *Phys. Rev.* **D39**, 1378 (1989).
145. **Phenomenology of Small Violations of Fermi and Bose Statistics**, (with O.W. Greenberg), *Phys. Rev.* **D39**, 2032 (1989).
146. **Radiative Fermion Masses from New Physics at the TeV Scale**, (with B. Balakrishna), *Phys. Lett.* **216B**, 349 (1989).
147. **Is There a Connection Between Electric Charge Quantization and a Majorana Neutrino?**, (with K.S. Babu), *Phys. Rev. Lett.* **63**, 938 (1989).
148. **Quantization of Electric Charge from Anomaly Constraints and a Majorana Neutrino**, (with K.S. Babu), *Phys. Rev.* **D41**, 271 (1990).
149. **27^3 Yukawa Couplings in Three Generation Superstring Models**, (with E. Rusjan, G. Senjanovic, and A. Sokorac), *Phys. Lett.* **225B**, 73 (1989).
150. **Model for Large Transition Magnetic Moment of the Neutrino**, (with K.S. Babu), *Phys. Rev. Lett.* **63**, 228 (1989).
151. **Gauge Model for Excess Cosmic Microwave Background**, (with K.S. Babu), *Phys. Rev. Lett.* **64**, 9 (1990).
152. **Supersymmetry and Large Transition Magnetic Moment of the Neutrino** (with K.S. Babu), *Phys. Rev. Lett.* **64**, 1705 (1990).
153. **Permutation Symmetry and Origin of Fermion Mass Hierarchies**, (with K.S. Babu), *Phys. Rev. Lett.* **64**, 2747 (1990).
154. **Infinite Statistics and Possible Small Violation of Pauli Exclusion Principle**, *Phys. Lett.* **242B**, 407 (1990).
155. **Astrophysical Constraints on Minicharged Particles**, (with I.Z. Rothstein), *Phys. Lett.* **247B**, 593 (1990).
156. **Large Transition Magnetic Moment of Neutrino from Horizontal Symmetry** (with K.S. Babu), *Phys. Rev.* **D42**, 3778 (1990).
157. **Why Does Electromagnetism Conserve Parity?**, (with K.S. Babu), *Phys. Rev.* **D42**, 3866 (1990).

158. **Radiative Fermion Masses and Large Neutrino Magnetic Moment: A Unified Picture**, (with K.S. Babu), *Phys. Rev.* **D43**, 2278 (1991).
159. **Top Quark Mass in a Dynamical Symmetry Breaking Scheme with Radiative b-Quark and Tau-Lepton Masses**, (with K.S. Babu), *Phys. Rev. Lett.* **66**, 556 (1991).
160. **Beyond the Standard Model**, *Prog. in Nucl. and Particle Phys.* **26**, 1 (1991).
161. **A Solution to the Strong CP-Problem without the Axion**, (with K.S. Babu), *Phys. Rev.*, **D41**, 1286 (1990).
162. **CP-Violation in See-Saw Models for Fermion Masses**, (with K.S. Babu), *Phys. Rev.* **62**, 1079 (1989).
163. **Reconciling the Kamiokande and Chlorine Solar Neutrino Data**, (with K.S. Babu), *Phys. Rev.* **D44**, 2265 (1991).
164. **Supersymmetric Model for Fermion Masses Hierarchies**, (with K.S. Babu and B. Balakrishna), *Phys. Lett.* **B237**, 221 (1990).
165. **Geometrical Neutrino Mass Hierarchy and a 17-keV Tau Neutrino**, (with K.S. Babu), *Phys. Rev. Lett.* **67**, 545 (1991).
166. **Three Neutrino Decay of a 17-keV Dirac Tau Neutrino**, (with K.S. Babu and I.Z. Rothstein), *Phys. Rev. Lett.* **67**, 545 (1991).
167. **Does the 17-keV Neutrino Indicate an $L_e - L_\mu + L_\tau$ Symmetry?** (with K.S. Babu), *Phys. Lett.* **267B**, 400 (1991).
168. **Electric Charge Non-Conservation and Mini-Charged Particles - Phenomenological Implications**, (with S. Nussinov), *Int. Journ. Mod. Physics.* **A7**, 3817 (1992).
169. **QCD Sphalerons and Baryogenesis at the Electro-Weak Scale**, (with X. Zhang), *Phys. Rev.* **D45**, 2699 (1992).
170. **17-keV Neutrino, MSW Mechanism and Supernova Constraints**, (with K.S. Babu and I.Z. Rothstein), *Phys. Rev.* **D45**, R5 (1992).
171. **Evading the Dirac Neutrino Mass Constraints from SN1987A**, (with K.S. Babu and I.Z. Rothstein), *Phys. Rev.* **D45**, R3312 (1992).
172. **Weak Scale See-Saw Model for the 17-keV Neutrino**, (with K.S. Babu), *Phys. Rev.* **D46**, 374 (1992).
173. **Muonium-Anti-Muonium Conversion and Anomalous Muon Decay in Left-Right Symmetric Models**, (with P. Herczeg), *Phys. Rev.* **69**, 2475 (1992).

174. **Rare Decays of Tau Lepton as a Probe of Left-Right Symmetric Models**, *Phys. Rev.* **D46**, 2990 (1992).
175. **Electro-Weak Baryogenesis in the Left-Right Symmetric Models**, (with X. Zhang), *Phys. Rev.* **D46**, 5331 (1992).
176. **Threshold Effects on the Mass Scale Predictions in SO(10) Model and Solar Neutrino Puzzle**, (with M.K. Parida), *Phys. Rev.* **D47**, 264 (1993).
177. **Constraints on the Majoron Decay Modes of the 17keV and its Implications**, (with S. Nussinov), *Int. Journ. Mod. Phys.* **7**, 3817 (1992).
178. **Planck Scale Effects on the Majoron**, (with E. Akhmedov, Z. Berezhiani and G. Senjanovic), *Phys Lett.* **B299**, 90 (1993).
179. **Planck Scale Physics and SOLUTIONS to the Strong CP-Problem without the Axion**, (with Z. Berezhiani and G. Senjanovic), *Phys. Rev.* **D47**, 5565 (1993).
180. **Restrictions on B-L Symmetry Breaking Implied by a Fourth Generation Neutrino**, (with X. Zhang), *Phys. Lett.* **B305**, 106 (1993).
181. **No Parity Violation without R-Parity Violation**, (with R. Kuchimanchi), *Phys. Rev.* **D48**, 4352 (1993).
182. **Predictive Neutrino Spectrum in Minimal SO(10) Model**, (with K.S. Babu), *Phys. Rev. Lett.* **70**, 2845 (1993).
183. **Neutrino Mass Explanations of Solar and Atmospheric Neutrino Deficit and Hot Dark Matter**, (with D. Caldwell), *Phys. Rev.* **D48**, 3259 (1993).
184. **Cosmological Constraints on the Scale of Supersymmetric Singlet Majoron**, (with X. Zhang), *Phys. Rev.* **D49**, R1163 (1994).
185. **An SO(10) $\times S_4$ Scenario for Degenerate Neutrinos**, (with D.G.Lee), *Phys. Lett.* **B**, (1994).
186. **Natural Double-Triplet Splitting in Supersymmetric SO(10) Models**, (with D.G.Lee), *Phys. Lett.* **324B**, 376 (1994).
187. **Effects of Electron-Positron Decay of a Tau Neutrino near the Supernova**, (with S.Nussinov and X.Zhang), *Phys. Rev.* **D49**, 3434 (1994).
188. **Lepton Flavor Violation and the Mass of the Tau Neutrino**, (with S. Nussinov and X. Zhang), *Phys. Rev.* **D49**, 2410 (1994).
189. **Accommodating Solar and Atmospheric Neutrino Puzzle, Hot Dark Matter and a Double Beta Decay Signal**, (with D. Caldwell), *Phys. Rev.* **D50**, 3477 (1994).

190. **A TeV Scale Theory for Cold and Hot Dark Matter**, (with A. Riotto), *Phys. Rev. Lett.* **73**, 1324 (1994).
191. **Implications of a Purely Right-handed b-decay Coupling**, (with S. Nussinov), *Phys. Lett.* **B339**, 101 (1994).
192. **Muonic Analog of Nuclear Double Beta Decay: A New Window on Lepton Number Violation**, (with J. Missimer and N. Mukhopadhyay), *Phys. Rev.* **D50**, 2067 (1994).
193. **Partial Derivation of the Transformation Properties of Quarks and Leptons**, (with P. Frampton), *Phys. Rev.* **D50**, 3569 (1994).
194. **Almost Degenerate Neutrinos with Maximal Mixing**, (with S. Nussinov), *Phys. Lett.* **B346**, 75 (1995).
195. **Heavy Sterile Neutrinos and Neutrinoless Double Beta Decay**, (with P. Bamert and C. Burgess), *Nucl. Phys.* **B438**, 3 (1995).
196. **Constraints on Massive Tau Neutrinos and their Cosmological Implications**, (with S. Nussinov), *Phys. Rev.* **D51**, 3843 (1995).
197. **An Inverted Neutrino Mass Hierarchy for Hot Dark Matter and the Solar Neutrino Deficit**, (with D. Caldwell), *Phys. Lett.* **B354**, 371 (1995).
198. **Reconciling Present Neutrino Puzzles: Sterile Neutrinos and Mirror Neutrinos**, (with Z. Berezhiani), *Phys. Rev.* **D52**, 6607 (1995).
199. **New Vector-Scalar Contribution to Neutrinoless Double Beta Decay and Constraints on R-Parity Violation**, (with K.S. Babu), *Phys. Rev. Lett.* **75**, 2276 (1995).
200. **Intermediate Scales in SUSY SO(10), b- τ Unification and Hot Dark Matter Neutrinos**, (with D.G.Lee), *Phys. Rev.* **D52**, 4125 (1995).
201. **Low α_s , Intermediate Scale SUSY SO(10) and Its Implications**, (with B. Brahmachari), *Phys. Lett.* **B357**, 566 (1995).
202. **Multi-Majoron Modes for Neutrinoless Double Beta Decay**, (with C. Burgess and P. Bamert), *Nucl. Phys.* **B449**, 25 (1995).
203. **Automatically R- Conserving Supersymmetric SO(10) Models and Mixed Light Higgs Doublets**, (with D.G. Lee), *Phys. Rev.* **D51**, 1353 (1995).
204. **Upper Bound on the W -Mass in Automatically R-Conserving SUSY Models**, (with R. Kuchimanchi), *Phys. Rev. Lett.* **75**, 3989 (1995).
205. **Asymmetric Inflationary Reheating and the Nature of the Mirror Universe**, (with Z. Berezhiani and A. Dolgov), *Phys. Lett.* **B375**, 26 (1996).

206. **Simple Supersymmetric Solution to the Strong CP Problem**, (with A. Rasin), *Phys. Rev. Lett.* **76**, 3490 (1996).
207. **A Supersymmetric Composite Model of Quarks and Leptons**, (with Markus A. Luty), *Phys. Lett.* **B396**, 161 (1997).
208. **Supersymmetric Models with Anomalous U(1) Mediated Supersymmetry Breaking**, (with A. Riotto), *Phys. Rev.* **D55**, 4262 (1997).
209. **Can Long Range Anomalous Neutrino Interactions Account for the Measured Tritium Beta Decay Spectrum ?**, (with Shmuel Nussinov), *Phys. Lett.* **B395**, 63 (1997).
210. **Anomalous U(1) Mediated SUSY Breaking, Fermion Masses and Natural Suppression of FCNC and CP Violating Effects**, (with Antonio Riotto), *Phys. Rev.* **D55**, 1138 (1997).
211. **Higgs Boson Mass in Models with Gauge Mediated Supersymmetry Breaking**, (with A. Riotto and O. Tornkvist), *Phys. Lett.* **B388**, 599 (1996).
212. **A Nonsupersymmetric Interpretation of the CDF $e^+e^-\gamma\gamma$ + Missing E(T) Event**, (with Gautam Bhattacharyya), *Phys. Rev.* **D54**, 4204 (1996).
213. **New Supernova Constraints on Sterile Neutrino Production**, (with Edward W. Kolb and Vigdor L. Teplitz), *Phys. Rev. Lett.* **77**, 3066 (1996).
214. **A Supersymmetric Solution to CP Problems**, (with Andrija Rasin), *Phys. Rev.* **D54**, 5835 (1996).
215. **Structures in the Mirror Universe**, (with Vigdor L. Teplitz), *Ap. J.*, **478**, 29 (1997).
216. **SU(5) X SU(5) Unification, Seesaw Mechanism and R Conservation**, *Phys. Lett.* **B379**, 115 (1996).
217. **New astrophysical constraints on the superlight gravitino**, (with J. Grifols and A. Riotto), *Phys. Lett.* **B400**, 124 (1997).
218. **Supersymmetric composite models for quarks and leptons**, (with Markus Luty), *Phys. Lett.* **B396**, 161 (1997).
219. **Supersymmetric models with anomalous U(1) mediated supersymmetry breaking**, (with A. Riotto), *Phys. Rev.* **D55**, 4262 (1997).
220. **Can long range anomalous neutrino interactions account for the measured tritium beta decay spectrum ?**, (with S. Nussinov), *Phys. Lett.* **B395**, 63 (1997).
221. **New messenger sector for gauge mediated supersymmetry breaking**, (with S. Nandi), *Phys. Rev. Lett.* **79**, 181 (1997).

222. **Sparticle spectroscopy and phenomenology in a new class of gauge mediated supersymmetry breaking**, (with Z. Chacko, B. Dutta, and S. Nandi), *Phys. Rev. D* **56**, 5466 (1997).
223. **Explaining the HERA anomaly without giving up R-parity conservation**, (with B. Dutta and S. Nandi), *Phys. Lett. B* **412**, 337 (1997).
224. **P, C and Strong CP in left-right supersymmetric models**, (with A. Rasin and G. Senjanovic), *Phys. Rev. Lett.* **79**, 4744 (1997).
225. **Supersymmetric $SU(2)_L \times SU(2)_R \times SU(4)_c$ and observable neutron-anti-neutron oscillation**", (with Z. Chacko), *Phys. Rev. D* **59**, 055004 (1999).
226. **A four neutrino mixing scheme for observed neutrino data**, (with S. Gibbons, S. Nandi, and A. Raichoudhuri), *Phys. Lett. B* **430**, 296 (1998).
227. **Phenomenology of light remnant doubly charged Higgs bosoms**, (with B. Dutta), *Phys. Rev. D* **59**, 015018 (1999).
228. **Grand unification of the sterile neutrino**, (with B. Brahmachari), *Phys. Lett. B* **437**, 100 (1998).
229. **Gauge model for maximal neutrino mixing**, (with S. Nussinov), *Phys. Lett. B* **441**, 299 (1998).
230. **Limits on Pauli violation by nucleons**, (with E. Baron and V. L. Teplitz), *Phys. Rev. D* **59**, 036003 (1999).
231. **Economical doublet-triplet splitting and strong suppression of proton decay in $SO(10)$** , (with Z. Chacko), *Phys. Rev. D* **59**, 011702 (1999).
232. **Doublet-triplet splitting in supersymmetric $SU(6)$ by missing vev mechanism**, (with Z. Chacko), *Phys. Lett. B* **442**, 199 (1998).
233. **Supernova constraints on the superlight gravitino**, (with D. A. Dicus and V. L. Teplitz), *Phys. Rev. D* **57**, 578 (1998).
234. **Possible manifestation of heavy stable colored particles in cosmology and cosmic rays**, (with S. Nussinov), *Phys. Rev. D* **57**, 1940 (1998).
235. **Unified explanation of solar and atmospheric neutrino data in supersymmetric $SO(10)$** , (with B. Brahmachari), *Phys. Rev. D* **58**, 015003 (1998).
236. **Primordial nucleosynthesis constraints on the massive strongly interacting particles**, (with V. L. Teplitz), *Phys. Rev. Lett.* **81**, 3079 (1998).
237. **Mirror matter MACHOs**, (with V. L. Teplitz), *Phys. Lett. B* **462**, 302 (1999).

238. **Partial Yukawa unification and supersymmetric origin of flavor mixing**, (with K. S. babu and B. Dutta), *Phys. Rev.* **D60**, 095004 (1999).
239. **A new doublet-triplet splitting mechanism for supersymmetric SO(10) and implications for fermion masses**, (with Z. Chacko), *Phys. Rev. Lett.* **82**, 2836 (1999).
240. **Bimaximal neutrino mixing and neutrino mass matrix**, (with S. Nussinov), *Phys. Rev.* **D60**, 013002 (1999).
241. **Up-down unification, neutrino masses and rare lepton decays**, (with K. S. babu and B. Dutta), *Phys. Lett.* **B458**, 93 (1999).
242. **Supersymmetry, Local horizontal unification and a solution to the flavor puzzle**, (with K. S. Babu) *Phys. Rev. Lett.* **83**, 2522 (1999).
243. **Seesaw constrained MSSM, solution to the SUSY CP problem and a supersymmetric explanation of ϵ'/ϵ** , (with K. S. Babu and B. Dutta), *Phys. Rev.* **D61**, 091701 (2000).
244. **Sterile neutrinos in E_6 and a natural understanding of the vacuum oscillation solution to the solar neutrino puzzle**, (with Z. Chacko) *Phys. Rev.* **D61**, 053002 (2000).
245. **Sterile neutrino as the bulk neutrino** (with A. Perez-Lorenzana) *Nucl. Phys.* **B 567**, 466 (2000).
246. **Neutrino masses and mixings in models with large extra dimensions** (with S. Nandi and A. Perez-Lorenzana) *Phys. Lett.* **B466**, 115 (1999).
247. **Cosmology of Brane-Bulk Models In Five-Dimensions**, (with A. Perez-Lorenzana, C.A. de Sousa Pires), hep-ph/0003328 (Int. Journ. Mod. Phys., to appear).
248. **Inflation In Models With Large Extra Dimension Driven By a Bulk Scalar Field**, (with A. Perez-Lorenzana, Carlos Antonio de Sousa Pires), *Phys. Rev.* **D62**, 105030 (2000).
249. **Radiative Magnification Of Neutrino Mixings And A Natural Explanation Of The Neutrino Anomalies**, (with K.R.S. Balaji, Amol S. Dighe, M.K. Parida), *Phys. Lett.* **B481**, 33 (2000).
250. **Generation Of Large Flavor Mixing From Radiative Corrections**, (with K.R.S. Balaji, Amol S. Dighe, M.K.Parida), *Phys. Rev. Lett.* **84**, 5034 (2000).
251. **A Testing Ground For The Karmen Anomaly**, (with I. Goldman and S. Nussinov), *Phys. Lett.* **B474**, 355 (2000).

252. **Type II Seesaw And A Gauge Model For The Bimaximal Mixing Explanation Of Neutrino Puzzles**, (with A. Perez-Lorenzana, Carlos Antonio de Sousa Pires), *Phys.Lett.* **B474**, 355 (2000).
253. **Enhanced Electric Dipole Moment of Muon in the Presence of Large Neutrino Mixings** (with K. S. Babu and B. Dutta), *Phys. Rev. Lett* **85**, 5064 (2000).
254. **Neutrino mass, bulk majoron and neutrinoless double beta decay** (with A. Perez-Lorenzana, C. A. de S. Pires). *Phys.Lett.* **B491** (2000) 143-147.
255. **A new fit to solar neutrino data in models with large extra dimensions** (with D. O. Caldwell, S. Yellin). *Phys.Rev.* **D64** (2001) 073001.
256. **Large Neutrino Mixing from Renormalization Group Evolution** (with K.R.S. Balaji, M.K. Parida, E.A. Paschos). *Phys.Rev.* **D63** (2001) 113002.
257. **Large Extra Dimensions, Sterile neutrinos and Solar Neutrino Data** (with D. O. Caldwell, S. J. Yellin), *Phys.Rev.Lett.* **87** (2001) 041601.
258. **Solving the Strong CP and the SUSY Phase Problems with Parity Symmetry** (with K.S. Babu, B. Dutta) *Phys.Rev.* **D65** (2002) 016005.
259. **Models for Geometric CP Violation with Extra Dimensions** (with Darwin Chang, Wai-Yee Keung), *Phys.Lett.* **B515** (2001) 431.
260. **Prediction of $\sin^2 \theta_W$ in a Conformal Approach to Coupling Unification** (with P.H. Frampton, S. Suh). *Phys.Lett.* **B520** (2001) 331.
261. **Geometric CP Violation with Extra Dimensions** (with Darwin Chang), *Phys.Rev.Lett.* **87** (2001) 211601.
262. **$L_e + L_\mu - L_\tau - L_s$ Symmetry and a Mixed 2+2 Scenario for Neutrino Oscillations** (with K.S. Babu), *Phys.Lett.* **B522** (2001) 287.
263. **Observable Neutron-Antineutron Oscillations in Seesaw Models of Neutrino Mass** (with K.S. Babu), *Phys.Lett.* **B518** (2001) 269.
264. **Connecting bimaximal neutrino mixing to a light sterile neutrino**, *Phys.Rev.* **D64** (2001) 091301.
265. **Big bang nucleosynthesis constraints on bulk neutrinos** (with H. S. Goh), *Phys.Rev.* **D65** (2002) 085018.
266. **Testing neutrino mass matrices with approximate $L_e - L_{mu} - L_{tau}$ symmetry** (with H.S. Goh, S.P. Ng), hep-ph/0205131
267. **A minimal three generation seesaw scenario for LSND** (with B. Brahmachari, Biswajoy Brahmachari, Sandhya Choubey), hep-ph/0204073, *Phys. Lett.* **B**, (2002)

268. **Neutrino magnetic moment, large extra dimensions and high energy cosmic neutrino spectra** (with K.R.S. Balaji, A Dighe) hep-ph/0202267.
269. **Predictive Schemes for Bimaximal Neutrino Mixings** (with K.S. Babu), Phys.Lett. **B532** (2002) 77.
270. **Left-right symmetry in 5D and neutrino mass in TeV scale gravity models** (with A. Perez-Lorenzana), Phys.Rev. **D66**, 035005 (2002).
271. **Testing neutrino mass matrices with approximate $L_e - L_{\mu} - L_{\tau}$ symmetry** (H. S. Goh, S.-P. Ng) Phys.Lett. **B542**, 116 (2002).
272. **A minimal three generation seesaw scenario for LSND** (with Biswajoy Brahmachari, Sandhya Choubey) Phys.Lett. **B536** 94 (2002).
273. **Bimaximal Neutrino Mixing from a Local SU(2) Horizontal Symmetry**(with R. Kuchimanchi), Phys.Rev. **D66** 051301 (2002).
274. **Neutrino mass, proton decay and dark matter in TeV scale universal extra dimension models**, (with A. Perez-Lorenzana), Phys.Rev. **D67** 075015 (2003).
275. **Manifest CP Violation from Majorana Phases**, (with Andre de Gouvea, Boris Kayser) Phys.Rev. **D67**, 053004 (2003).
276. **Lepton Flavor Violation and the Origin of the Seesaw Mechanism** (with K.S. Babu, B. Dutta) Phys.Rev. **D67**, 076006 (2003).
277. **Testing leptonic SU(2) horizontal symmetry using neutrino mixings** (with R. Kuchimanchi) Phys.Lett. **B552** 198 (2003)

Invited Talks at Conferences

1. **Strong Interaction IVB Models**, (with R.E. Marshak, S. Okubo, and J.S. Rao), *Proceedings of the CERN Topical Conference on Weak Interactions*, ed. by J.S. Bell, p.370.
2. **CP-Violation in Gauge Theories**, *Proceedings of the Williamsburg Conference of APS-DPF, 1974*, ed. by C.E. Carlson, p. 127.
3. **Strong W-Pair Model and J-Particles**, (with R.E. Marshak), *Proceedings of the Colloque International du CNRS - Physique du Neutrino a Haute Energie*, 1975.
4. **Currents, Quarks and Gluons**, invited talk presented at the Workshop on Quark Binding, June 14-18, 1976, Rochester, N.Y., published in the *Proceedings: Quark Binding and Field Theory*, ed. by Stump and Weingarten, p. 145.
5. **A Speculation Concerning the Possible Dynamical Origin of Cabibbo Angle**, *Proceedings of the Symposium on Five Decades in Weak Interactions*, honoring Robert E. Marchak on his Sixtieth Birthday, published by the New York Academy of Sciences, 1977.
6. **Weak Interaction Models with Spontaneously Broken Left-Right Symmetry**, invited talk at the Gordon Conference on Elementary Particles, August 1977.
7. **Weak Interaction Models with Spontaneously Broken Left-Right Symmetry**, invited talk presented at the Orbis Scintiae Conference, Coral Gables, FL, published in the *Proceedings*.
8. **Do Weak Interactions Really Violate Parity?**, invited talk at the 'Seminars on Gauge Field Theories' Conference, Moscow, U.S.S.R., 1978, published in the *Proceedings*.
9. **Strong and Weak CP-Violation in Gauge Theories - A Review**, *Proceedings of the XIX International Conference on High Energy Physics*, ed. by M. Kawaguchi and H. Miyazawa, Tokyo, 1978, p. 604.
10. **Broken Symmetry at High Temperature and the Problem of Baryon Excess in the Universe**, (with G. Senjanovic), invited talk presented at the EPS Conference on High Energy Physics, Geneva, Switzerland, June 1979.
11. **Selection Rules for Baryon Non-Conservation in Gauge Models**, (with R.E. Marshak), *Recent Developments in High Energy Physics*, ed. by A. Perlmutter and L. Scott, (Plenum, 1980), p. 277.
12. **Majorana Masses for Neutrinos and Neutron Oscillation: (N-N) as Tests of Unification Models with Intermediate Mass Scales**, *High Energy Physics*, 1980, ed. by L. Durand and L. Pondrom, (AIP 1980), p. 428.

13. **Left-Right Symmetry, Compositeness, and Baryon Number of the Universe**, *Weak Interactions as Probes of Unification*, ed. by G. Collins, L. Chang, and J. Firenze, (AIP, 1980), p. 647.
14. **Left-Right Symmetry, Grand Unification and Cosmology**, invited Winter School Lectures at Kalpakkam, India, (organized by Tata Institute of Fundamental Research, Bombay), to be published in the *Proceedings* and to appear in *Fortschritte der Physik*, 1983.
15. **Neutron-Antineutron Oscillation: Theory and Phenomenology**, invited talk at ICOBAN-82, held in Tata Institute of Fundamental Research, Bombay, to appear in the *Proceedings*.
16. **Problems and Prospects for Unification: Theoretical Summary - ICOBAN-82**, summary talk at ICOBAN-82, Tata Institute of Fundamental Research, Bombay, to appear in the *Proceedings*.
17. **Theory and Phenomenology of Neutron-Antineutron Oscillation**, Harvard Workshop on Neutron-Antineutron Mixing, April 1982, ed. by M. Goodman, et al.
18. **Compositeness and Origin of Fermi Coupling Constant**, *Neutrino Mass and Gauge Structure of Weak Interaction*, A.I.P. Publication 99, p. 146, 1983.
19. **Left-Right Symmetric Models of CP-Violation and Experimental Implications**, *Intense Medium Energy Sources of Strangeness*, A.I.P. Publication 102, p. 99, 1983.
20. **Left-Right Symmetric Models and their Implications**, *Quarks, Leptons and Beyond*, ed. by R. Peccei, et al., Plenum, N.Y.
21. **New and Automatic Solutions to Strong CP-Problem in N=1 Supergravity**, talk presented at the Seattle Summer School, VPI Summer School, August 1983.
22. **Phenomenology of Real Goldstone Particles**, *Proceedings of XXII International Conference on High Energy Physics*, Berkeley, CA, July 1986, ed. S.Loken, et al., World Scientific Publishing, Singapore, p. 295.
23. **Theoretical Origin of Quark Mixings**, *Proceedings of the Santa Monica Workshop on Fourth Family of Quarks and Leptons*, ed. by A. Soni and D. Cline, 1987, New York Academy of Sciences.
24. **Low Energy Probes of Grandunification**, *Proceedings of the Eighth Workshop on Grandunification*, ed. by K.C. Wali, 1987, World Scientific Publishing, Singapore.

25. **Yukawa Couplings and Phenomenological Profile of a Three Generation Model**, *Proceedings of the Maryland Workshop on Superstrings, Compositeness, and Cosmology*, ed. by S.J. Gates, Jr. and R.N. Mohapatra, 1987, World Scientific Publishing, Singapore.
26. **Neutrino Masses in Left-Right Symmetric, SO(10), and Superstring Models**, *Proceedings of the International Conference on Neutrino Physics*, Heidelberg, 1987, ed. by H.V. Klapdor.
27. **Neutrino Masses, Decays, and Magnetic Moment**, INS (Tokyo) Symposium on Neutrino Physics, to be published in the *Proceedings*.
28. **Magnetic Moment of the Neutrino**, Neutrino '88, Medford, Mass., June 1988, to be published in the *Proceedings*.
29. **Supernova Constraints on the Properties of the Neutrino**, APS-DPF Meeting, Storrs, Connecticut, World Scientific Publishing.
30. **Massive Neutrinos - Theory and Phenomenology**, DESY Meeting on Flavor Physics, 1988.
31. **Lecture on Grandunification and Superstrings**, four lectures at Trieste Workshop, Summer 1988.
32. **Fermion Mass Hierarchies Out of Radiative Correction**, UCLA Workshop on *The Fourth Family of Quarks and Leptons*", ed. D.Cline and A. Soni, New York Acad. of Sciences, Vol. 578, 431 (1989).
33. **Beyond the Standard Model**, International Conference on the *Weak and Electromagnetic Interactions in Nuclei*, ed. P.Depomiev, Edition Frontiere, p. 133 (1989).
34. **Solar Neutrino Puzzle and the Magnetic Moment of the Neutrino**, Moriond Workshop on *New and Exotic Phenomena*, ed. O. Fackler and J. Tran Than Van, Edition Frontiere, p. 531 (1990).
35. **Understanding the Electric Charge of Quarks and Leptons**, International Conference on *From Symmetries to Strings*, ed. A.Das, World Scientific, p. 57 (1990).
36. **Solar Neutrino Puzzle and Physics Beyond the Standard Model**, Workshop on *Beyond the Standard Model II*, ed. K.Milton, et al., World Scientific, p. 126 (1990).
37. **Solar Neutrino Puzzle, Horizontal Symmetry, and Fermion Mass Hierarchies**, Workshop on *Quarks, Symmetries, and Strings*, ed. M.Kaku, World Scientific, p. 43 (1991).

38. **Implications of 17-keV Neutrino**, *Particles, Strings, and Cosmology*, ed. P.Nath, et al., World Scientific, p. 131 (1991).
39. **Rare Muon Decays - Theory**, International Workshop on the *Future of Muon Physics*, Heidelberg, May 1991.
40. **Models for the 17-keV Neutrino**, invited talks at the *Berkeley Workshop on the 17-keV Neutrino*, December 1991 and the *Fermilab Workshop on Neutrino Physics*, November 1991.
41. **Reconciling the Time Variation in Chlorine and Kamiokande Solar Neutrino Data**, invited talks at the *LEP-HEP Conference, CERN, Geneva, August 1991*; and *Fermilab Neutrino Workshop, November 1991*, unpublished.
42. **SO(10) Grand-unification and Solar Neutrino Puzzle**, invited talks at *Nordita Workshop on Neutrinos, June 1992*; *Neutrino '92, Granada, June 1992*; and *Gransasso Workshop on Neutrinos, July 1992*, published in the proceedings.
43. **Neutrino Mass as a Probe of Higher Unification**, Invited series of lectures at the workshop on **Particle Physics and Cosmology Interface**", Puri, India, January 1993.
44. **Lepton Flavor Violation and Rate Muon Decays**, LEMS '93, Los Alamos, April 1993.
45. **Rare Muon and Kaon Decays as Probe of New Fundamental Symmetries of Nature**, workshop on *Future Hadron Facilities*, Brookhaven National Laboratory, March 1993.
46. **Supersymmetric SO(10) Model and Predictions for Neutrino Masses**, SUSY '93, Boston; April 1993, and Kazimierz, Poland, May 1993.
47. **Massive Neutrinos as a Probe of Higher Unification**, *International School of Nuclear Physics, Erice, September 1993*; *International Conference on Non-Accelerator Particle Physics, Bangalore, January 1994*.
48. **Hints of Grandunification in Neutrino Data**, *Neutrino Telescope '94*, Venice, February 1994.
49. **Supersymmetry Constraints on Global Symmetries**, SUSY '94 (Ann Arbor, MI), May, 1994.
50. **A Superstring Inspired SO(10) Theory of Fermion Masses**, workshop on **Physics from Weak Scale to Planck Scale**, Warsaw, Poland (Sept., 1994) and Workshop on **Fermion Masses**, Fermilab, October, 1994.
51. **Neutrinoless Double Beta Decay and Physics Beyond the Standard Model**, Invited talk at the International Workshop on *Neutrinoless Double Beta Decay*, held in Trento, Italy in May 1995. Edited by H. Klapdor-Kleingrothaus and S. Stoica (World Scientific, Singapore); p. 44.

52. **New Fundamental Symmetries of Nature, Hints and Tests**, Proceedings of WIEN '95, Osaka, Japan. Edited by H.Ejiri et. al. (World Scientific, Singapore); p.1.
53. **Neutron-Anti-Neutron Oscillation as a Probe of Grand Unification**, Proceedings of the *International Workshop on Baryon Instability*, edited by Y. Kamyshkov et. al. (1996); p. 73.
54. **Neutrino Mass Textures and Grand Unification**, Proceedings of Neutrino '96 Conference, Helsinki, Finland (to appear), June, 1996.
55. **Review of particle physics candidate for dark matter** in *Dark matter astrophysics and astrophysics*, ed. H.Klapdor-Kleingrothaus and Y.Ramachers, World Scientific (1997).
56. **Strong CP problem**, FCP'97, Nashville (May, 1997);
57. **Left-right symmetry just beyond MSSM** *Beyond the Desert*, workshop, Castle Ringberg, Germany;
58. **Supersymmetric grand unification**, *Theoretical Advanced Summer Inst.*, Boulder, June 1997.
59. **Left Right symmetry just beyond MSSM**, NANP'97, Dubna, Russia, July (1997);
60. **Neutrino Puzzles and new physics** *Cosmo'97*, Ambleside, UK, September (1997).
61. **Hints of new physics in neutrino data**, *Neutrino Workshop*, Erice, Italy, September (1997).
62. **Neutrino physics in a muon collider**, *Muon collider workshop*, Fermilab, November (1997).
63. **Sterile neutrinos: theory and phenomenology**, Ringberg workshop on *Recent trends in neutrino physics*, Ringberg, Germany, June (1998).
64. **Particle physics implications of neutrinoless double beta decay**, Neutrino98, Takayama, Japan, June (1998).
65. **Beyond the standard model**, WEIN98, Santa Fe, New Mexico, June (1998).
66. **Nucleosynthesis constraints on strongly interacting dark matter**, *Dark'98* workshop, Heidelberg, Germany, July (1998).
67. **Theoretical implications of recent neutrino data**, *Relic neutrino workshop*, Trieste, Italy, September (1998).
68. **Sterile neutrinos**, *Cosmo98*, Monterey, Ca. November (1998).

69. **Quest for grand unity in physics**, TIFR, Mumbai (India).
70. **Supersymmetric left-right models**, *Beyond 99* workshop, Ringberg, Germany (1999).
71. **Lepton flavor violation as a probe of new physics**, *Lepton moments* workshop, Heidelberg, Germany, July (1999).
72. **Theory of neutrino masses**, *Cosmo'99*, Trieste, Italy, September (1999).
73. **Mirror Dark matter**, *Pascos99*, Lake Tahoe, 1999 and *Dark Matter 2000*, Los Angeles, February (2000).
74. **CP violation and physics beyond the standard model**, *CIPANP2000*, Quebec, Canada, May (2000).
75. **Theories of neutrino masses and mixings**, *Neutrino2000*, Sudbury, Canada, June (2000).
76. **Neutrinos and large extra dimensions**, *Beyond 4-D* workshop, Trieste, Italy, July (2000).
77. **Mirror dark matter**, *IDM2000*, Sheffield, UK (September, 2000).
78. **Neutrinos and large extra dimensions**, *Workshop on lepton flavor violation*, Honolulu, Hawaii (October, 2000).
79. **Sterile Neutrinos and large extra dimensions**, Neutrino telescope conference, Venice, Italy, March (2001).
80. **CP, Strong CP and P**, Snowmass conference, July (2001).
81. **CP, Strong CP and P**, Pecceifest, UCLA, January (2002).
82. **Probing new symmetries of leptons using neutrinos**, WIN'02, Christ Church, New Zealand, January, (2002).
83. **Probing new symmetries of leptons using neutrinos**, Fermilab Off-axis conference, April (2002).
84. **Neutrino masses as probes of physics beyond the standard model**, Beyond'02 conference, Oulu, Finland, June (2002).
85. **Understanding neutrino masses and mixings**, SUSY'02, DESY, Germany, June (2002).
86. **What can we learn from neutrinoless double beta decay about physics beyond the standard model ?**, INT workshop, October (2002); NESS workshop, Washington DC, September (2002).

87. **Probing the nature of seesaw mechanism using neutron-anti-neutron oscillation**, N-N-bar workshop, Bloomington, Indiana, September (2002).
88. **Understanding neutrino masses and mixings**, PASCOS03, Mumbai, India, January (2003).
89. **Neutrino Mass-Theory**, Neutrino Telescope conference, Venice, Italy, March, (2003).
90. **Minimal SUSY SO(10)-A completely predictive model for neutrinos**, ITP Workshop on neutrinos and SUGRA20 workshop in Boston, March (2003), Argonne workshop on “New trends in neutrino physics”, May (2003).
91. **Neutrino Mass and Grand unification**, SUSY2003, Tucson, Arizona, June (2003).
92. **Probing the leptogenesis phase using lepton edms**, Baryogenesis workshop, Ann Arbor, Michigan, June (2003).