

# Paul Sukhpal Sanghera, Ph.D.

## List of Publications in Research Journals

**Note.** In these publications my name is mostly written as S. Sanghera, and in a few as S.S. Sanghera

1. Measurement of  $a_s$  from  $z^0$  decays; Phys. Lett. B356, 580(1995).
2. A test of optimized perturbative QCD to  $O(a_s^2)$  and  $O(a_s^3)$  from  $Z^0$  and  $\chi$  decays, and a method to deal with the renormalization scale ambiguity; International Journal of Modern Physics, A9, (1994)5743-5752.
3. A global determination of  $a_s(M_Z)$  at LEP; Z. Phys. C55 (1992)1-24.
4. A Study of the recombination scheme dependence of jet production rates and of  $a_s(M_Z)$  in hadronic  $Z^0$  decays; Z. Phys. C49 (1991) 375-384.
5. A study of jet production rates and a test of QCD on the  $Z^0$  resonance; Phys. Lett. B235(1990)389-398.
6. Quasi-soliton and other behavior of the nonlinear cubic-quintic Schrodinger equation; Can. J. Phys. 64(1986)311-315.
7. Observation of an excited charmed baryon decaying into  $\Xi(c)0 \pi^+$ , CLEO Collaboration (L. Gibbons (Rochester U.) et al.), Phys.Rev.Lett. 77 (1996) 810-813.
8. Analysis of  $D0 \rightarrow K \text{ anti-K X}$  decays, CLEO Collaboration (D.M. Asner (UC, San Diego) et al.). Phys.Rev. D54 (1996) 4211-4220.
9. A Measurement of  $B(D0 \rightarrow K^- \pi^+ \pi^0) / B(D0 \rightarrow K^- \pi^+)$ . CLEO Collaboration (B. Barish (Caltech) et al.). Phys.Lett. B373 (1996) 334-338.
10. Measurement of the branching fraction for  $D(s)^- \rightarrow \phi \pi^-$ . CLEO Collaboration (M. Artuso (Syracuse U.) et al.). Phys.Lett. B378 (1996) 364-372.
11. First observation of the decay  $\tau^- \rightarrow K^- \eta \nu_\tau$ . CLEO Collaboration (John E. Bartelt (Vanderbilt U.) et al.). Phys.Rev.Lett. 76 (1996) 4119-4123.
12. Decays of tau leptons to final states containing  $K(s)0$  mesons. CLEO Collaboration (T.E. Coan (Southern Methodist U.) et al.). Phys.Rev. D53 (1996) 6037-6053.
13. Limits on flavor changing neutral currents in  $D0$  meson decays. CLEO Collaboration (A. Freyberger (Virginia Tech.) et al.). Phys.Rev.Lett. 76 (1996) 3065-3069. Erratum-ibid. 77 (1996) 2147.
14. Observation of new decay modes of the charmed strange baryon  $\Xi(c)^+$ . CLEO Collaboration (K.W. Edwards (Carleton U.) et al.). Phys.Lett. B373 (1996) 261-266.
15. Study of  $B \rightarrow \psi \rho$ . CLEO Collaboration (M. Bishai (Purdue U.) et al.). Phys.Lett. B369 (1996) 186-192.
16. Measurement of the form-factors for  $\text{anti-B}0 \rightarrow D^{*+} \text{ lepton}^- \text{ anti-neutrino}$ . CLEO Collaboration (J.E. Duboscq (Ohio State U.) et al. Phys.Rev.Lett. 76 (1996) 3898-3902.
17. Tau decays into three charged leptons and two neutrinos. CLEO Collaboration (M.S. Alam (SUNY, Albany) et al.). Phys.Rev.Lett. 76 (1996) 2637-2641.
18. Measurements of the inclusive semielectronic  $D0$  branching fraction. CLEO Collaboration (Y. Kubota (Minnesota U.) et al.). Phys.Rev. D54 (1996) 2994-3005.

19. Measurements of  $B \rightarrow D(s)^+ X$  decays. CLEO Collaboration (D. Gibaut (Virginia Tech.) et al.). Phys.Rev. D53 (1996) 4734-4746.
20. Measurements of the B semileptonic branching fraction with lepton tags. CLEO Collaboration (B. Barish (Caltech) et al.). Phys.Rev.Lett. 76 (1996) 1570-1574.
21. Measurements of the decays  $\tau^- \rightarrow h^- h^+ h^- \tau$ -neutrino and  $\tau^- \rightarrow h^- h^+ h^- \pi^0 \tau$ -neutrino. CLEO Collaboration (R. Balest (Colorado U.) et al.). Phys.Rev.Lett. 75 (1995) 3809-3813.
22. The Inclusive decay  $B \rightarrow \eta X$ . CLEO Collaboration (Y. Kubota (Minnesota U.) et al.). Phys.Rev. D53 (1996) 6033-6036.
23. Measurements of the ratios  $B(D(s)^+ \rightarrow \eta \text{ lepton}^+ \text{ neutrino}) / B(D(s)^+ \rightarrow \phi \text{ lepton}^+ \text{ neutrino})$  and  $B(D(s)^+ \rightarrow \eta' \text{ lepton}^+ \text{ neutrino}) / B(D(s)^+ \rightarrow \phi \text{ lepton}^+ \text{ neutrino})$ . CLEO Collaboration (G. Brandenburg (Harvard U.) et al.). Phys.Rev.Lett. 75 (1995) 3804-3808
24. Observation of the isospin violating decay  $D(s)^* \rightarrow D(s)^+ \pi^0$ . CLEO Collaboration (J. Gronberg (UC, Santa Barbara) et al.). Phys.Rev.Lett. 75 (1995) 3232-3236.
25. Observation of a narrow state decaying into  $\Xi(c)^+ \pi^-$ . CLEO Collaboration (P. Avery (Florida U.) et al.). Phys.Rev.Lett. 75 (1995) 4364-4368.
26. Observation of the  $\Xi(c)^+$  charmed baryon decays to  $\Sigma^+ K^- \pi^+$ ,  $\Sigma^+ \text{ anti-}K^0$ , and  $\Lambda b K^- \pi^+ \pi^+$ . CLEO Collaboration (T. Bergfeld (Illinois U., Urbana) et al.). Phys.Lett. B365 (1996) 431-436.
27. Observation of a narrow state decaying into  $\Xi(c)^+ \pi^-$ . CLEO Collaboration (P. Avery (Florida U.) et al.). Phys.Rev.Lett. 75 (1995) 4364-4368.
28. Observation of the Cabibbo suppressed charmed baryon decay  $\lambda(c)^+ \rightarrow p \phi$ . CLEO Collaboration (J.P. Alexander (Cornell U., LNS) et al.). Phys.Rev. D53 (1996) 1013-1017.
29. Search for exclusive charmless hadronic B decays. CLEO Collaboration (D.M. Asner (UC, San Diego) et al.). Phys.Rev. D53 (1996) 1039-1050.
30. Measurement of  $\alpha_s$  from tau decays. CLEO Collaboration (T. Coan et al.). Phys.Lett. B356 (1995) 580-588.
31. Search for CP violation in  $D^0$  decay. CLEO Collaboration (John E. Bartelt (Vanderbilt U.) et al.). Phys.Rev. D52 (1995) 4860-4867.
32. A Search for  $B \rightarrow \text{lepton anti-lepton-neutrino}$ . Cleo Collaboration (M. Artuso et al.). Phys.Rev.Lett. 75 (1995) 785-789.
33. Measurement of the ratio of branching fractions  $B(D^0 \rightarrow \pi^- e^+ \text{ electron-neutrino}) / B(D^0 \rightarrow K^- e^+ \text{ electron-neutrino})$ . CLEO Collaboration (F. Butler et al.). Phys.Rev. D52 (1995) 2656-2660.
34. Measurement of the decay asymmetry parameters in  $\Lambda(c)^+ \rightarrow \Lambda \pi^+$  and  $\Lambda(c)^+ \rightarrow \Sigma^+ \pi^0$ . CLEO Collaboration (M. Bishai et al.). Phys.Lett. B350 (1995) 256-262.
35. Form-factor ratio measurement in  $\Lambda(c)^+ \rightarrow \Lambda e^+ \text{ electron-neutrino}$ . CLEO Collaboration (Glen D. Crawford et al.). Phys.Rev.Lett. 75 (1995) 624-628.
36. New decay modes of the  $\Lambda(c)^+$  charm baryon. CLEO Collaboration (R. Ammar et al.). Phys.Rev.Lett. 74 (1995) 3534-3537.
37. Inclusive decays of  $B$  mesons to charmonium. CLEO Collaboration (R. Balest et al.). Phys.Rev. D52 (1995) 2661-2672.
38. First measurement of the rate for the inclusive radiative penguin decay  $b \rightarrow s \gamma$ . CLEO Collaboration (M.S. Alam et al.). Phys.Rev.Lett. 74 (1995) 2885-2889.
39. Observation of excited baryon states decaying to  $\Lambda(c)^+ \pi^+ \pi^-$ . CLEO Collaboration (K.W. Edwards et al.). Phys.Rev.Lett. 74 (1995) 3331-3335.

40. Observation of  $D1^+$  (2420) and  $D2^{*+}$  (2460). CLEO Collaboration (T. Bergfeld et al.). Phys.Lett. B340 (1994) 194-204.
41. Measurement of the branching fraction for Upsilon (1S)  $\rightarrow$  tau<sup>+</sup> tau<sup>-</sup>. CLEO Collaboration (D. Cinabro et al.). Phys.Lett. B340 (1994) 129-134.
42. Observation of B  $\rightarrow$  psi pi decays. CLEO Collaboration (James P. Alexander et al.). Phys.Lett. B341 (1995) 435-440, Erratum-ibid. B347 (1995) 469.
43. Measurement of the ratios of form-factors in the decay  $D(s)^+ \rightarrow$  phi e<sup>+</sup> electron-neutrino. CLEO Collaboration (P. Avery et al.). Phys.Lett. B337 (1994) 405-410.
44. First observation of  $\Xi(c)^+ \rightarrow$  Xi<sup>0</sup> e<sup>+</sup> electron-neutrino and a measurement of the  $\Xi(c)^+ / \Xi(c)^0$  lifetime ratio. CLEO Collaboration (James P. Alexander et al.). Phys.Rev.Lett. 74 (1995) 3113-3117, Erratum-ibid. 75 (1995) 4155.
45. Search for neutrinoless decays of the tau lepton. CLEO Collaboration (John E. Bartelt et al.). Phys.Rev.Lett. 73 (1994) 1890-1894.
46. Upsilon (1s)  $\rightarrow$  gamma + noninteracting particles. CLEO Collaboration (R. Balest et al.). Phys.Rev. D51 (1995) 2053-2060.
47. First measurement of the inclusive rate for the radiative penguin decay  $b \rightarrow s \gamma$  By CLEO Collaboration (B. Barish et al.).
48. Measurement of the anti-B  $\rightarrow$  D\* lepton anti-neutrino branching fractions and  $|V(cb)|$  By CLEO Collaboration (B. Barish et al.). Phys.Rev. D51 (1995) 1014-1033.
49. Semileptonic branching fractions of charged and neutral B mesons. CLEO Collaboration (M. Athanas et al.). Phys.Rev.Lett. 73 (1994) 3503-3507, Erratum-ibid. 74 (1995) 3090.
50. Study of the five charged pion decay of the tau lepton. CLEO Collaboration (D. Gibaut et al.). Phys.Rev.Lett. 73 (1994) 934-938.
51. Production and decay of  $D1^0$  (2420) and  $D2^{*0}$  (2460) By CLEO Collaboration (P. Avery et al.). Phys.Lett. B331 (1994) 236-244, Erratum-ibid. B342 (1995) 453.
52. Measurement of Cabibbo suppressed decays of the tau lepton By CLEO Collaboration (M. Battle et al.). Phys.Rev.Lett. 73 (1994) 1079-1083.
53. Two photon production of charged pion and kaon pairs. CLEO Collaboration (J. Dominick et al.). Phys.Rev. D50 (1994) 3027-3037.
54. A Measurement of B ( $D(s)^+ \rightarrow$  phi lepton<sup>+</sup> neutrino) / b ( $D(s)^+ \rightarrow$  phi pi<sup>+</sup>). CLEO Collaboration (F. Butler et al.). Phys.Lett. B324 (1994) 255-262.
55. Study of the decay  $\lambda(c)^+ \rightarrow$  Lambda lepton<sup>+</sup> lepton-neutrino. CLEO Collaboration (T. Bergfeld et al.). Phys.Lett. B323 (1994) 219-226.
56. Measurement of the branching fraction for  $D^+ \rightarrow$  K<sup>-</sup> pi<sup>+</sup> pi<sup>+</sup>. CLEO Collaboration (R. Balest et al.). Phys.Rev.Lett. 72 (1994) 2328-2331.
57. Luminosity measurement with the CLEO-II detector. CLEO Collaboration (Glen D. Crawford et al.). Nucl.Instrum.Meth. A345 (1994) 429-439.
58. Observation of a new charmed strange meson. CLEO Collaboration (Y. Kubota et al.). Phys.Rev.Lett. 72 (1994) 1972-1976.
59. Observation of  $D^0 \rightarrow$  K<sup>+</sup> pi<sup>-</sup>. CLEO Collaboration (D. Cinabro et al.). Phys.Rev.Lett. 72 (1994) 1406-1410.
60. Observation of inclusive B decays to the charmed baryons Sigma(c)<sup>++</sup> and Sigma(c)<sup>0</sup> By CLEO Collaboration (M. Procaro et al.). Phys.Rev.Lett. 73 (1994) 1472-1476.
61. Search for B<sup>0</sup> decays to two charged leptons. CLEO Collaboration (R. Ammar et al.). Phys.Rev. D49 (1994) 5701-5704.

62. Observation of  $\Lambda(c)^+$  decays to  $\Lambda \pi^+ \pi^0$ ,  $\Sigma^0 \pi^+$ ,  $\Sigma^0 \pi^+ \pi^0$ , and  $\Sigma^0 \pi^+ \pi^+$ . CLEO Collaboration (P. Avery et al.). Phys.Lett. B325 (1994) 257-262.
63. Measurement of two photon production of the  $\chi(c^2)$ . CLEO Collaboration (V. Shelkov et al.). Phys.Rev. D50 (1994) 4265-4271.
64. A test of optimized perturbative QCD to  $O(\alpha_s^2)$  and  $O(\alpha_s^3)$  from  $Z^0$  and  $\tau$  decays, and a method to deal with the renormalization scale ambiguity; S. Sanghera, International Journal of Modern Physics, A9, (1994)5743-5752.
65. Measurement of cross-section for  $\gamma \gamma \rightarrow p \text{ anti-}p$ . CLEO Collaboration (M. Artuso et al.). Phys.Rev. D50 (1994) 5484-5490.
66. Measurement of charmless semileptonic decays of B mesons. CLEO Collaboration (John E. Bartelt et al.). Phys.Rev.Lett. 71 (1993) 4111-4115.
67. Measurement of the absolute branching fraction for  $D^0 \rightarrow K^- \pi^+$ . CLEO Collaboration (D.S. Akerib et al.). Phys.Rev.Lett. 71 (1993) 3070-3074.
68. First measurement of  $\Gamma(D(s)^+ \rightarrow \mu^+ \text{ neutrino}) / \Gamma(D(s)^+ \rightarrow \pi^+ \pi^+)$ . CLEO Collaboration (D. Acosta et al.). Phys.Rev. D49 (1994) 5690-5700.
69. Observation of  $B^0$  decay to two charmless mesons. CLEO Collaboration (M. Battle et al.). Phys.Rev.Lett. 71 (1993) 3922-3926.
70. Analysis of hadronic transitions in  $\text{upsilon}(3S)$  decays. CLEO Collaboration (F. Butler et al.). Phys.Rev. D49 (1994) 40-57.
71. A Measurement of the branching fraction  $\text{Beta}(\tau^+ \rightarrow h^+ \pi^0 \text{ tau-neutrino})$ . CLEO Collaboration (M. Artuso et al.). Phys.Rev.Lett. 72 (1994) 3762-3766.
72. Exclusive hadronic B decays to charm and charmonium final states. CLEO Collaboration (M.S. Alam et al.). Phys.Rev. D50 (1994) 43-68.
73. Precision measurement of the  $D(s)^+ - D(s)^+$  mass difference. CLEO Collaboration (David Norvil Brown et al.). Phys.Rev. D50 (1994) 1884-1891.
74. Search for exclusive  $b \rightarrow u$  transitions in hadronic decays of B mesons involving  $D(s)^+$  and  $D(s)^+ \pi^+$  mesons. CLEO Collaboration (James P. Alexander et al.). Phys.Lett. B319 (1993) 365-372.
75. Measurement of exclusive semileptonic decays of D mesons. CLEO Collaboration (A. Bean et al.). Phys.Lett. B317 (1993) 647-654.
76. Measurement of the decay  $\tau^- \rightarrow \pi^- \pi^+ \pi^- 2 \pi^0 \text{ tau-neutrino}$ . CLEO Collaboration (D. Bortoletto et al.). Phys.Rev.Lett. 71 (1993) 1791-1795.
77. Measurement of exclusive  $\Lambda(c)$  decays with a  $\Sigma^+$  in the final state. CLEO Collaboration (Y. Kubota et al.). Phys.Rev.Lett. 71 (1993) 3255-3258.
78. Observation of the charmed Baryon  $\Sigma(c)^+$  and measurement of the isospin mass splittings of the  $\Sigma(c)$ . CLEO Collaboration (Glen D. Crawford et al.). Phys.Rev.Lett. 71 (1993) 3259-3262.
79. Measurement of the ratio  $B(D^+ \rightarrow \pi^0 \text{ lepton}^+ \text{ neutrino}) / B(D^+ \rightarrow \text{anti-}K^0 \text{ lepton}^+ \text{ neutrino})$ . CLEO Collaboration (M.S. Alam et al.). Phys.Rev.Lett. 71 (1993) 1311-1315.
80. The  $D \rightarrow \pi \pi$  branching fractions. CLEO Collaboration (M. Selen et al.). Phys.Rev.Lett. 71 (1993) 1973-1977. A Measurement of the tau lepton mass. CLEO Collaboration (R. Ballest et al.). Phys.Rev. D47 (1993) 3671-3675.
81. Measurement of tau decays involving eta mesons. CLEO Collaboration (M. Artuso et al.). Phys.Rev.Lett. 69 (1992) 3278-3281.
82. Evidence for penguins: First observation of  $B \rightarrow K^* (892) \gamma$ . CLEO Collaboration (R. Ammar et al.). Phys.Rev.Lett. 71 (1993) 674-678.

83. Study of the decays  $\lambda(c)^+ \rightarrow \xi^0 K^+$ ,  $\lambda(c)^+ \rightarrow \sigma^+ K^+ K^-$  and  $\lambda(c)^+ \rightarrow \xi^- K^+ \pi^+$ . CLEO Collaboration (P. Avery et al.). Phys.Rev.Lett. 71 (1993) 2391-2395. Two measurements of  $B^0$  anti- $B^0$  mixing. CLEO Collaboration (John E. Bartelt et al.). Phys.Rev.Lett. 71 (1993) 1680-1684.
84. A Limit on the tau-neutrino mass. CLEO Collaboration (D. Cinabro et al.). Phys.Rev.Lett. 70 (1993) 3700-3704.
85. Production and decay of the  $D(s_1)^+$  (2536). CLEO Collaboration (James P. Alexander et al.). Phys.Lett. B303 (1993) 377-384.
86. Inclusive measurement of B mesons semileptonic branching fractions. CLEO Collaboration (John E. Bartelt et al.).
87. A Search for exclusive  $b \rightarrow u$  semileptonic decays of B mesons. CLEO Collaboration (A. Bean et al.). Phys.Rev.Lett. 70 (1993) 2681-2685.
88. A Search for  $\tau \rightarrow \gamma \mu$ : A Test of lepton number conservation. CLEO Collaboration (A. Bean et al.). Phys.Rev.Lett. 70 (1993) 138-142.
89. Study of  $D^0$  decays into anti- $K^0$  and anti- $K^{*0}$ . CLEO Collaboration (M. Procaro et al.). Phys.Rev. D48 (1993) 4007-4017.
90. Tau decays with one charged particle plus multiple  $\pi^0$ s. CLEO Collaboration (M. Procaro et al.). Phys.Rev.Lett. 70 (1993) 1207-1211.
91. Measurement of the tau lepton electronic branching fraction. CLEO Collaboration (D.S. Akerib et al.). Phys.Rev.Lett. 69 (1992) 3610-3614, Erratum-ibid. 71 (1993) 3395.
92. Lepton asymmetry measurements in anti-B  $\rightarrow D^{*1-}$  anti-neutrino and implications for V-A and the form-factors. CLEO Collaboration (S. Sanghera et al.). Phys.Rev. D47 (1993) 791-798.
93. Measurement of the  $D^{*}$  (2010) branching fractions. CLEO Collaboration (F. Butler et al.). Phys.Rev.Lett. 69 (1992) 2041-2045.
94. Isospin mass splittings from precision measurements of  $D^{*}$  - D mass differences. CLEO Collaboration (D. Bortoletto et al.). Phys.Rev.Lett. 69 (1992) 2046-2049.
95. A Study of two particle momentum correlations in hadronic  $Z^0$  decays. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B287 (1992) 401-412.
96. Measurement of the tau topological branching ratios at LEP. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B288 (1992) 373-385.
97. A Test of higher order electroweak theory in  $Z^0$  decays to two leptons with an associated pair of charged particles. Opal Collaboration (P.D. Acton et al.). Phys.Lett. B287 (1992) 389-400.
98. A measurement of electron production in hadronic  $Z^0$  decays and a determination of  $\Gamma(Z^0 \rightarrow b \text{ anti-}b)$ . OPAL Collaboration (P.D. Acton et al.). Z.Phys. C55 (1992) 191-208.
99. Evidence for b flavored baryon production in  $Z^0$  decays at LEP. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B281 (1992) 394-404.
100. A Global determination of  $\alpha^s(M(z^0))$  at LEP. OPAL Collaboration (P.D. Acton et al.). Z.Phys. C55 (1992) 1-24.
101. Test of CP invariance in  $e^+ e^- \rightarrow Z^0 \rightarrow \tau^+ \tau^-$  and a limit on the weak dipole moment of the tau lepton. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B281 (1992) 405-415.
102. Electroweak parameters of the  $Z^0$  resonance and the Standard Model: the LEP Collaborations  
By LEP and ALEPH and DELPHI and L3 and OPAL Collaborations (G. Alexander et al.). Phys.Lett. B276 (1992) 247-253.

103. Search for free gluons in hadronic  $Z^0$  decays. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B278 (1992) 485-494.
104. Properties of multi - hadronic events with a final state photon at  $s^{**}(1/2) = M(Z^0)$ . OPAL Collaboration (P.D. Acton et al.). Z.Phys. C54 (1992) 193-210.
105. An Improved measurement of  $\alpha_s(M(Z^0))$  using energy correlations with the OPAL detector at LEP. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B276 (1992) 547-564.
106. Measurement of  $B^0$  - anti- $B^0$  mixing in hadronic  $Z^0$  decays. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B276 (1992) 379-392.
107. Measurement of the average B hadron lifetime in  $Z^0$  decays. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B274 (1992) 513-525.
108. A Study of charged particle multiplicities in hadronic decays of the  $Z^0$ . OPAL Collaboration (P.D. Acton et al.). Z.Phys. C53 (1992) 539-554.
109. A Measurement of photon radiation in lepton pair events from  $Z^0$  decays. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B273 (1991) 338-354.
110. Measurement of the tau lepton lifetime. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B273 (1991) 355-366.
111. Decay mode independent search for a light Higgs boson and new scalars. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B268 (1991) 122-136.
112. A Study of Bose-Einstein correlations in  $e^+ e^-$  annihilations at LEP. OPAL Collaboration (P.D. Acton et al.). Phys.Lett. B267 (1991) 143-153.
113. Observation of  $J/\psi$  production in multi - hadronic  $Z^0$  decays. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B266 (1991) 485-496.
114. Measurement of branching ratios and tau polarization from  $\tau \rightarrow e \nu \bar{\nu}$ ,  $\tau \rightarrow \mu \nu \bar{\nu}$ , and  $\tau \rightarrow \pi(K) \nu \bar{\nu}$  decays at LEP. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B266 (1991) 201-217.
115. Measurement of three jet distributions sensitive to the gluon spin in  $e^+ e^-$  annihilations at  $S^{**}(1/2) = 91\text{-GeV}$ . OPAL Collaboration (G. Alexander et al.). Z.Phys. C52 (1991) 543-550.
116. A Direct observation of quark - gluon jet differences at LEP. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B265 (1991) 462-474.
117. A Measurement of the electroweak couplings of up and down type quarks using final state photons in hadronic  $z^0$  decays. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B264 (1991) 219-232.
118. A Study of  $K^0(s)$  production in  $Z^0$  decays. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B264 (1991) 467-475.
119. Measurement of the  $Z^0$  line shape parameters and the electroweak couplings of charged leptons. OPAL Collaboration (G. Alexander et al.). Z.Phys. C52 (1991) 175-208.
120. A Search for scalar leptoquarks in  $Z^0$  decays. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B263 (1991) 123-134.
121. A Study of  $D^{*+}$  production in  $Z^0$  decays. OPAL Collaboration (G. Alexander et al.). Phys.Lett. B262 (1991) 341-350.
122. Intermittency in hadronic decays of the  $Z^0$ . OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B262 (1991) 351-361.
123. A Study of heavy flavor production using muons in hadronic  $Z^0$  decays. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B263 (1991) 311-324.
124. A Model independent observation of the string effect using quark tagging at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B261 (1991) 334-346.

125. Measurement of the cross-sections of the reactions  $e^+ e^- \rightarrow \gamma \gamma$  and  $e^+ e^- \rightarrow \gamma \gamma \gamma$  at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B257 (1991) 531-540.
126. A Direct measurement of the  $Z^0$  invisible width by single photon counting. OPAL Collaboration (M.Z. Akrawy et al.). Z.Phys. C50 (1991) 373-384.
127. Search for the minimal standard model Higgs boson in  $e^+ e^-$  collisions at LEP By OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B253 (1991) 511-523.
128. A Search for lepton flavor violation in  $Z^0$  decays. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B254 (1991) 293-302.
129. A Study of the recombination scheme dependence of jet production rates and of  $\alpha_s(m(Z^0))$  in hadronic  $Z^0$  decays. OPAL Collaboration (M.Z. Akrawy et al.). Z.Phys. C49 (1991) 375-384.
130. Search for pair produced stable singly charged heavy particles in  $Z^0$  decays By OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B252 (1990) 290-300.
131. A Measurement of energy correlations and a determination of  $\alpha_s(M^2(Z^0))$  in  $e^+ e^-$  annihilations at  $\sqrt{s} = 91\text{-GeV}$ . OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B252 (1990) 159-169.
132. Limits on a light Higgs boson in  $e^+ e^-$  collisions at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B251 (1990) 211-222.
133. Searches for neutral Higgs bosons in  $e^+ e^-$  collisions at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Z.Phys. C49 (1991) 1-16.
134. A Study of coherence of soft gluons in hadron jets. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B247 (1990) 617-628.
135. A Direct search for neutralino production at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B248 (1990) 211-219.
136. A Study of angular correlations in 4-jet final states of hadronic  $Z^0$  decays. OPAL Collaboration (M.Z. Akrawy et al.). Z.Phys. C49 (1991) 49-58.
137. Analysis of  $Z^0$  couplings to charged leptons. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B247 (1990) 458-472.
138. Limits on neutral heavy lepton production from  $Z^0$  decay. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B247 (1990) 448-457.
139. Evidence For Final State Photons In Multi - Hadronic Decays Of The  $Z^0$ . OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B246 (1990) 285-296.
140. Search For Excited Leptons At LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B244 (1990) 135-142.
141. A Measurement Of Global Event Shape Distributions In The Hadronic Decays Of The  $Z^0$ . OPAL Collaboration (M.Z. Akrawy et al.). Z.Phys. C47 (1990) 505-522.
142. A Search For Technipions And Charged Higgs Bosons At LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B242 (1990) 299-308.
143. A Study Of The Reaction  $E^+ E^- \rightarrow \gamma \gamma$  At Lep. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B241 (1990) 133.
144. A Combined Analysis Of The Hadronic And Leptonic Decays Of The  $Z^0$ . OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B240 (1990) 497-512.

145. A Direct Search For New Charged Heavy Leptons At Lep. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B240 (1990) 250.
146. A Search For Acoplanar Pairs Of Leptons Or Jets In Z0 Decays: Mass Limits On Supersymmetric Particles. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B240 (1990) 261.
147. A Search For New Charged Heavy Leptons With The Opal Detector At Lep. OPAL Collaboration (M.Z. Akrawy et al.).
148. Mass Limits for a Standard Model Higgs Boson in e+ e- Collisions at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B236 (1990) 224.
149. A Search For The Top And B-prime Quarks In Hadronic Z0 Decays. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B236 (1990) 364.
150. A Study of Jet Production Rates and a Test of QCD on the Z0 Resonance. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B235 (1990) 389.
151. Measurement Of The Decay Of The Z0 Into Lepton Pairs. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B235 (1990) 379.
152. Measurement of the  $Z^0$  Mass and Width with the OPAL Detector at LEP. OPAL Collaboration (M.Z. Akrawy et al.). Phys.Lett. B231 (1989) 530.
153. Quasi-soliton and other behavior of the nonlinear cubic-quintic Schrodinger equation; R.H. Cowan et al. Can. J. Phys. 64(1986)311-315.