

References

1. C.S. Gardner, J.M. Greene, M.D. Kruskal, R.M. Miura: Phys. Rev. Lett. **19**, 1095 (1967)
2. P.D. Lax: Commun. Pure Appl. Math. **10**, 537 (1957) and **21**, 467 (1968)
3. V.E. Zakharov, A.B. Shabat: Zh. Eksp. Teor. Fiz. **61**, 118 (1971) [Trans. Sov. Phys. JETP Lett. **34**, 62 (1972)]
4. A. Hasegawa: Opt. Lett. **8**, 650 (1983)
5. A. Hasegawa, F.D. Tappert: Appl. Phys. Lett. **23**, 142 (1973)
6. A. Hasegawa, F.D. Tappert: Appl. Phys. Lett. **23**, 171 (1973)
7. A. Hasegawa, W.F. Brinkman: IEEE J. Quant. Electron. **QE-16**, 694 (1980)
8. K. Tai, A. Hasegawa, A. Tomita: Phys. Rev. Lett. **59**, 135 (1986)
9. D. Anderson, M. Lisak: Opt. Lett. **9**, 463 (1984)
10. A. Hasegawa, K. Tai: Opt. Lett. **14**, 512 (1989)
11. A. Hasegawa: Opt. Lett. **9**, 288 (1984a)
12. A. Hasegawa: Phys. Lett. **53A**, 103 (1975)
13. G.P. Agrawal: Phys. Rev. Lett. **59**, 880 (1987)
14. M. Lisak, B. Hall, D. Anderson, R. Fedele, V.E. Semenov, P.K. Shukla, A. Hasegawa: Physica Scripta **T98**, 12 (2002)
15. J. Satsuma, N. Yajima: Suppl. Prog. Theor. Phys. (Japan) **55**, 284 (1974)
16. Y. Kodama, A. Hasegawa: IEEE J. Quant. Electron. **QE-23**, 510 (1987)
17. V.E. Zakharov, A.B. Shabat: Zh. Eksp. Teor. Fiz. **64**, 1627 (1973) [Trans. Sov. Phys. JETP **37**, 823 (1974)]
18. P. Emplit, J.P. Hamaide, F. Reynaud, C. Froehly, A. Barthelemy: Opt. Commun. **62**, 374 (1987)
19. D. Krökel, N.J. Halas, G. Giuliani, D. Grischkowsky: Phys. Rev. Lett. **60**, 29 (1988)
20. A.M. Weiner, J.P. Heritage, R.J. Hawkins, R.N. Thurston, E.M. Kirschner, D.E. Leaird, W.J. Tomlinson: Phys. Rev. Lett. **21**, 2445 (1988)
21. T. Taniuti: Prog. Theor. Phys. (Japan), Suppl. **55**, 1, (1974)
22. L.F. Mollenauer, R.H. Stolen, J.P. Gordon: Phys. Rev. Lett. **45**, 1095 (1980)
23. R.H. Stolen, L.F. Mollenauer, W.J. Tomlinson: Opt. Lett. **50**, 1027 (1987)
24. L.F. Mollenauer, K. Smith: Opt. Lett. **13**, 675 (1988)
25. V.A. Vysloukh, V.N. Serkin: Pisma Zh. Eksp. Teor. **38**, 170 (1983) [Trans. JETP Lett. **38**, 199 (1983)]
26. F. Mollenauer, R.H. Stolen: Opt. Lett. **10**, 229 (1985)
27. M. Dianov, Z.S. Nikonova, A.M. Prokhorov, V.N. Serkin: Dokl. Akad. Nauk SSSR, **283**, 1342 (1985) [Trans. Sov. Phys. Dokl. **30**, 689 (1985)]
28. M. Mitev L.M. Kovachev: Opt. Commun. **63**, 421 (1987)
29. R.J. Mears, L. Reekie, I.M. Jauncey, D.N. Payne: Electron. Lett. **23**, 1026 (1987)
30. E. Desurvire, J.R. Simpson, P.C. Becker: Opt. Lett. **12**, 888 (1987)
31. M. Nakazawa, Y. Kimura, K. Suzuki: Electron. Lett. **25**, 199 (1989)

32. M. Nakazawa, K. Suzuki, Y. Kimura: *Opt. Lett.* **14**, 1065 (1989)
33. L.F. Mollenauer, P.V. Mamyshev, J. Gripp, M.J. Neubelt, N. Mamysheva, L.G. Nielsen, T. Veng: *Opt. Lett.* **25**, 704 (2000)
34. L.F. Mollenauer, J.P. Gordon, M.N. Islam: *IEEE J. Quant. Electron.* **QE-22**, 157 (1986)
35. R.H. Stolen, E.P. Ippen: *Appl. Phys. Lett.* **22**, 276 (1973)
36. A. Hasegawa: *Appl. Opt.* **23**, 3302 (1984)
37. V.I. Karpman, V.V. Solovov: *Physica* **3D**, 487 (1981)
38. J.P. Gordon: *Opt. Lett.* **8**, 596 (1983)
39. D. Anderson, M. Lisak: *Phys. Rev. A* **32**, 2270 (1987)
40. E. Shiojiri, Y. Fujii: *Appl. Opt.* **24**, 358 (1985)
41. F.M. Mitschke, L.F. Mollenauer: *Opt. Lett.* **12**, 355 (1987)
42. C. Desem, P.L. Chu: *Opt. Lett.* **12**, 349 (1987)
43. K. Iwatsuki, S. Nishi, M. Saruwatari, M. Shimizu: *IOOC 1989 Kobe, Japan Tech. Digest* **5**, paper 20 PDA-1 (1989)
44. M. Nakazawa, K. Suzuki, H. Kubota, E. Yamada, Y. Kimura: *IEEE J. Quant. Electron.* **26**, 2095 (1990)
45. L.F. Mollenauer, S.G. Evangelides, Jr., H.A. Haus: *J. Lightwave Technol.* **9**, 194 (1991)
46. K.J. Blow, N.J. Doran: *IEEE Photon. Technol. Lett.* **3**, 369 (1991)
47. A. Hasegawa, Y. Kodama: *Opt. Lett.* **15**, 1443 (1990)
48. J.P. Gordon, H.A. Haus: *Opt. Lett.* **11**, 665 (1986)
49. Y. Kodama, A. Hasegawa: *Opt. Lett.* **8**, 342 (1983)
50. A. Mecozzi, J.D. Moores, H.A. Haus, Y. Lai: *Opt. Lett.* **16**, 1841 (1991)
51. Y. Kodama, A. Hasegawa: *Opt. Lett.* **17**, 31 (1992)
52. L.F. Mollenauer, S.G. Evangelides, J.P. Gordon: *J. Lightwave Technol.* **9**, 362 (1991)
53. Y. Kodama, A. Hasegawa: *Opt. Lett.* **16**, 208 (1991)
54. C. Desem, P.L. Chu: *IEEE Proc. Pt. J* **134**, 145 (1987)
55. H. Kubota, M. Nakazawa: *IEEE J. Quant. Electron.* **26**, 692 (1990)
56. F.M. Mitschke, L.F. Mollenauer: *Opt. Lett.* **11**, 659 (1986)
57. A. Hasegawa, Y. Kodama: *Proc. IEEE* **69**, 1145 (1981)
58. L.F. Mollenauer, K. Smith, J.P. Gordon, C.R. Menyuk: *Opt. Lett.* **14**, 1219 (1989)
59. P.V. Mamyshev, L.F. Mollenauer: *Opt. Lett.* **21**, 396 (1996)
60. S.G. Evangelides, Jr., J.P. Gordon: *J. Lightwave Technol.* **41**, 1639 (1996)
61. M. Nakazawa, E. Yamada, H. Kubota, K. Suzuki: *Electron. Lett.* **27**, 1270 (1991)
62. L.F. Mollenauer, J.P. Gordon, S.G. Evangelides: *Opt. Lett.* **17**, 1575 (1992)
63. H. Kubota, M. Nakazawa: *J. Quant. Electron.* **29**, 2189 (1993)
64. Y. Kodama, M. Romagnoli, S. Wabnitz: *Electron. Lett.* **28**, 1981 (1992)
65. M. Matsumoto, A. Hasegawa: 'Effects of nonlinear gain on soliton transmission in fibers.' In: *Physics and Applications of Optical Solitons in Fibers '95*, ed. by A. Hasegawa (Kluwer, Dordrecht 1996) pp. 293-305
66. M. Matsumoto, H. Ikeda, A. Hasegawa: *Opt. Lett.* **19**, 183 (1994)
67. A. Mecozzi: *Opt. Lett.* **20**, 1859 (1995)
68. A. Hasegawa, T. Hirooka: *Electron. Lett.* **36**, 68 (2000)
69. L.F. Mollenauer, E. Lichtman, G.T. Harvey, M.J. Neubelt, B.M. Nyman: *Electron. Lett.* **28**, 792 (1992)
70. L.F. Mollenauer, E. Lichtman, M.J. Neubelt, G.T. Harvey: *Electron. Lett.* **29**, 910 (1993)
71. N.J. Smith, K.J. Blow, W.J. Firth, K. Smith: *Opt. Commun.* **102**, 324 (1993)
72. M. Nakazawa, K. Suzuki, H. Kubota: *Electron. Lett.* **35**, 1358 (1999)

73. O. Leclerc, B. Dany, D. Rouvillain, P. Brindel, E. Desurvire, C. Duchet, A. Shen, F. Devaux, A. Coquelin, M. Goix, S. Bouchoule, L. Fleury, P. Nouchi: *Electron. Lett.* **36**, 1574 (2000)
74. M.E. Fermann, F. Haberl, M. Hofer, H. Hochreiter: *Opt. Lett.* **15**, 752 (1990)
75. N.J. Doran, D. Wood: *Opt. Lett.* **13**, 56 (1988)
76. I.N. Duling III: *Electron. Lett.* **27**, 544 (1991)
77. D.J. Richardson, R.I. Laming, D.N. Payne, M.W. Phillips, V.J. Matsas: *Electron. Lett.* **27**, 730 (1991)
78. K.J. Blow, N.J. Doran, B.K. Nayar, B.P. Nelson: *Opt. Lett.* **15**, 248 (1990)
79. C.-J. Chen, P.K.A. Wai, C.R. Menyuk: *Opt. Lett.* **17**, 417 (1992)
80. H.G. Winful, D.T. Walton: *Opt. Lett.* **17**, 1688 (1992)
81. P.L. Chu, G.D. Peng, B.A. Malomed, H. Hatami-Hanza, I.M. Skinner: *Opt. Lett.* **20**, 1092 (1995)
82. D. Atkinson, W.H. Loh, V.V. Afanasjev, A.B. Grudinin, A.J. Seeds, D.N. Payne: *Opt. Lett.* **19**, 1514 (1994)
83. O. Leclerc, P. Brindel, S. Barré, G. Aubin, J. Mangeney, H. Choumane, J.-L. Oudar: 26th European Conference on Optical Communication (ECOC 2000), PD3.5 (2000)
84. E.M. Dianov, A.V. Luchnikov, A.N. Pilipetskii, A.M. Prokhorov: *Sov. Lightwave Commun.* **1**, 235 (1991)
85. E.A. Golovchenko, A.N. Pilipetskii: *J. Lightwave Technol.* **12**, 1052 (1994)
86. L.F. Mollenauer, P.V. Mamyshev, M.J. Neubelt: *Opt. Lett.* **19**, 704 (1994)
87. N. Tzoar, M. Jain: *Phys. Rev. A* **23**, 1266 (1981)
88. D. Yevich, B. Hermansson: *Opt. Commun.* **47**, 101 (1983)
89. D.N. Christodoulides, R.I. Joseph: *Appl. Phys. Lett.* **47**, 76 (1985)
90. E.A. Golvochenko, E.M. Dianov, A.M. Prokhorov, V.N. Serkin: *Pisma Zh. Eksp. Fiz* **42**, 74 (1985) [*Trans. JETP Lett.* **42**, 87 (1985)]
91. K. Ohkuma, Y.H. Ichikawa, Y. Abe: *Opt. Lett.* **12**, 516 (1987)
92. V.N. Serkin: *Pis'ma Zh. Tekh. Fiz.* **13**, 772 (1987) [*Trans. Sov. Tech. Phys. Lett.* **13**, 320 (1987)]
93. J.P. Gordon: *Opt. Lett.* **12**, 924 (1987)
94. W. Hodel, H.P. Weber: *Opt. Lett.* **12**, 924 (1987)
95. Y. Kodama, K. Nozakai: *Opt. Lett.* **12**, 1038 (1987)
96. K. Tai, A. Hasegawa, N. Bekki: *Opt. Lett.* **13**, 392 (1988) and **13**, 937 (1988)
97. A.B. Grudinin, E.M. Dianov, D.V. Korobkin, A.M. Prokhorov, V.N. Serkin, D.V. Khaidarov: *Pisma Zh. Eksp. Teor. Fiz* **46**, 175 (1987) [*Trans. JETP Lett.* **46**, 221 (1987)]
98. P. Beaud, W. Hodel, B. Zysset, H.P. Weber: *IEEE J. Quant. Electron.* **QE-23**, 1938 (1987)
99. Y. Kodama: *J. Statistical Phys.* **39**, 597 (1985)
100. Y. Kodama: *Phys. Lett.* **107A**, 245 (1985b)
101. P.K.A. Wai, C.R. Menyuk, H.H. Chen, Y.C. Lee: *Opt. Lett.* **12**, 628 (1987)
102. I.P. Kaminow: *IEEE J. Quant. Electron.* **QE-17**, 15 (1981)
103. S.C. Rashleigh: *J. Lightwave Technol.* **LT-1**, 312 (1983)
104. C.R. Menyuk: *IEEE J. Quant. Electron.* **QE-23**, 174 (1987)
105. A. Hasegawa: *Opt. Lett.* **5**, 416 (1980)
106. C.R. Menyuk: *Opt. Lett.* **12**, 614 (1987)
107. C.R. Menyuk: *J. Opt. Soc. Am. B* **5**, 392 (1988)
108. Y.S. Kivshar: *J. Opt. Soc. Am. B* **17**, 2204 (1990)
109. C.D. Poole, R.E. Wagner: *Electron. Lett.* **22**, 1029 (1986)
110. C.D. Poole, C.R. Giles: *Opt. Lett.* **13**, 155 (1988)
111. C.D. Poole, R.W. Tkach, A.R. Chraplyvy, D.A. Fishman: *IEEE Photon. Technol. Lett.* **3**, 68 (1991)

112. C.D. Poole, J.H. Winters, J.A. Nagel: *Opt. Lett.* **16**, 372 (1991)
113. G.J. Foschini, C.D. Poole: *J. Lightwave Technol.* **9**, 1439 (1991)
114. C.D. Poole, D.L. Favin: *J. Lightwave Technol.* **12**, 917 (1994)
115. C. Francia, F. Bruyère, D. Penninckx, M. Chbat: *IEEE Photon. Technol. Lett.* **10**, 1739 (1998)
116. P.K.A. Wai, C.R. Menyuk, H.H. Chen: *Opt. Lett.* **16**, 1231 (1991)
117. P.K.A. Wai, C.R. Menyuk: *J. Lightwave Technol.* **14**, 148 (1996)
118. D. Marcuse, C.R. Menyuk, P.K.A. Wai: *J. Lightwave Technol.* **15**, 1735 (1997)
119. M. Matsumoto, Y. Akagi, A. Hasegawa: *J. Lightwave Technol.* **15**, 584 (1997)
120. L.F. Mollenauer, J.P. Gordon, P.V. Mamyshev: In: *Optical Fiber Telecommunications IIIA*, ed. by I.P. Kaminow, T.L. Koch (Academic Press, 1997) Chap. 12
121. T.I. Lakoba, D.J. Kaup: *Phys. Rev. E* **56**, 6147 (1997)
122. Y. Chen, H.A. Haus: *Opt. Lett.* **25**, 290 (2000)
123. Y. Chen, H.A. Haus: *Chaos* **10**, 529 (2000)
124. I. Nishioka, T. Hirooka, A. Hasegawa: *IEEE Photon. Technol. Lett.* **12**, 1480 (2000)
125. T.I. Lakoba: *Opt. Lett.* **25**, 1789 (2000)
126. H. Sunnerud, J. Li, P.A. Andrekson, C. Xie: *IEEE Photon. Technol. Lett.* **13**, 118 (2001)
127. G.P. Agrawal: *Nonlinear Fiber Optics*, 2nd edn. (Academic Press, San Diego 1995)
128. S.V. Manakov: *Sov. Phys. JETP* **38**, 248 (1974)
129. S.G. Evangelides Jr., L.F. Mollenauer, J.P. Gordon, N.S. Bergano: *J. Lightwave Technol.* **10**, 28 (1992)
130. C. Xie, M. Karlsson, P.A. Andrekson: *IEEE Photon. Technol. Lett.* **12**, 801 (2000)
131. D. Marcuse, A.R. Chraplyvy, R.W. Tkach: *J. Lightwave Technol.* **9**, 121 (1991)
132. K. Tajima: *Opt. Lett.* **12**, 54 (1987)
133. P.V. Mamyshev, S.V. Chernikov, E.M. Dianov: *IEEE J. Quant. Electron.* **27**, 2347 (1991)
134. S. Chi, M.-C. Lin: *Electron. Lett.* **27**, 237 (1991)
135. W. Forsyiaik, F.M. Knox, N.J. Doran: *Opt. Lett.* **19**, 174 (1994)
136. A. Hasegawa, S. Kumar, Y. Kodama: *Opt. Lett.* **21**, 39 (1996)
137. A.J. Stentz, R.W. Boyd, A.F. Evans: *Opt. Lett.* **20**, 1770 (1995)
138. D.J. Richardson, L. Dong, R.P. Chamberlin, A.D. Ellis, T. Widdowson, W.A. Pender: *Electron. Lett.* **32**, 373 (1996)
139. L.F. Mollenauer, P.V. Mamyshev, M.J. Neubelt: *Electron. Lett.* **32**, 471 (1996)
140. L.F. Mollenauer, P.V. Mamyshev, M.J. Neubelt: 1996 Optical Fiber Communication Conference (OFC '96), PD-22 (1996)
141. F. Forghieri, R.W. Tkach, A.R. Chraplyvy: In: *Optical Fiber Telecommunications IIIA*, ed. by I.P. Kaminow, T.L. Koch (Academic Press, 1997) Chap. 8
142. D. Marcuse: *J. Lightwave Technol.* **9**, 356 (1991)
143. A.H. Gnauck, R.M. Jopson: In: *Optical Fiber Telecommunications IIIA*, ed. by I.P. Kaminow, T.L. Koch (Academic Press, 1997) Chap. 7
144. A.M. Vengsarkar, W.A. Reed: *Opt. Lett.* **18**, 924 (1993)
145. F. Ouellette: *Opt. Lett.* **12**, 847 (1987)
146. K. Mukasa, Y. Akasaka, Y. Suzuki, T. Kamiya: 23rd European Conference on Optical Communications (ECOC '97), **1**, 127 (1997)
147. A. Yariv, D. Fekete, D.M. Pepper: *Opt. Lett.* **4**, 52 (1979)
148. H. Kubota, M. Nakazawa: *Opt. Commun.* **87**, 15 (1992)
149. M. Suzuki, I. Morita, S. Yamamoto, N. Edagawa, H. Taga, S. Akiba: 1995 Optical Fiber Communication Conference (OFC '95), PD20 (1995)

150. M. Suzuki, I. Morita, N. Edagawa, S. Yamamoto, H. Taga, S. Akiba: *Electron. Lett.* **31**, 2027 (1995)
151. N.J. Smith, F.M. Knox, N.J. Doran, K.J. Blow, I. Bennion: *Electron. Lett.* **32**, 54 (1996)
152. D. Anderson: *Phys. Rev. A* **27**, 3135 (1983)
153. I. Gabitov, E.G. Shapiro, S.K. Turitsyn: *Opt. Commun.* **134**, 317 (1997)
154. B.A. Malomed: *Opt. Commun.* **136**, 313 (1997)
155. M. Matsumoto, H.A. Haus: *IEEE Photon. Technol. Lett.* **9**, 785 (1997)
156. I.R. Gabitov, S.K. Turitsyn: *Opt. Lett.* **21**, 327 (1996)
157. M.J. Ablowitz, G. Biondini: *Opt. Lett.* **23**, 1668 (1998)
158. T.I. Lakoba, D.J. Kaup: *Phys. Rev. E* **58**, 6728 (1998)
159. S.K. Turitsyn: 'Dispersion-managed solitons.' In: *Optical Solitons: Theoretical Challenges and Industrial Perspectives*, ed. by V. E. Zakharov and S. Wabnitz (Springer, Berlin 1999) pp.91–115
160. V. Cauteraerts, A. Maruta, Y. Kodama: *Chaos* **10**, 515 (2000)
161. M. Matsumoto: *Opt. Lett.* **22**, 1238 (1997)
162. P.-A. Bélanger, C. Paré: *J. Lightwave Technol.* **17**, 445 (1999)
163. A. Hasegawa, Y. Kodama: *Opt. Lett.* **16**, 1385 (1991)
164. T.-S. Yang, W.L. Kath: *Opt. Lett.* **22**, 985 (1997)
165. Y. Kodama: 'On the dispersion managed soliton.' In: *Massive WDM and TDM Soliton Transmission Systems*, ed. by A. Hasegawa (Kluwer, Dordrecht 2000) pp.129–138
166. V.S. Grigoryan, T. Yu, E.A. Golovchenko, C.R. Menyuk, A.N. Pilipetskii: *Opt. Lett.* **22**, 1609 (1997)
167. A. Berntson, N.J. Doran, W. Forysiak, J.H.B. Nijhof: *Opt. Lett.* **23**, 900 (1998)
168. T.I. Lakoba, D.E. Pelinovsky: *Chaos* **10**, 539 (2000)
169. J.H.B. Nijhof, N.J. Doran, W. Forysiak, F.M. Knox: *Electron. Lett.* **33**, 1726 (2000)
170. J.H.B. Nijhof, W. Forysiak, N.J. Doran: *IEEE J. Sel. Topics Quant. Electron.* **6**, 330 (2000)
171. S. Kumar, A. Hasegawa: *Opt. Lett.* **22**, 372 (1997)
172. S. Kumar, M. Wald, F. Lederer, A. Hasegawa: *Opt. Lett.* **23**, 1019 (1998)
173. V.N. Serkin, A. Hasegawa: *Phys. Rev. Lett.* **85**, 4502 (2000)
174. V.N. Serkin, A. Hasegawa: *JETP Lett.* **72**, 89 (2000)
175. N.J. Smith, N.J. Doran, F.M. Knox, and W. Forysiak: *Opt. Lett.* **21**, 1981 (1996)
176. J.H.B. Nijhof, N.J. Doran, W. Forysiak, and A. Berntson: *Electron. Lett.* **34**, 481 (1998)
177. T.I. Lakoba, J. Yang, D.J. Kaup, B.A. Malomed: *Opt. Commun.* **149**, 366 (1998)
178. S.K. Turitsyn, E.G. Shapiro: *Opt. Lett.* **23**, 682 (1998)
179. J.N. Kutz, S.G. Evangelides, Jr.: *Opt. Lett.* **23**, 685 (1998)
180. Y. Kodama, S. Kumar, A. Maruta: *Opt. Lett.* **22**, 1689 (1997)
181. Y. Chen, H.A. Haus: *Opt. Lett.* **23**, 1013 (1998)
182. V.S. Grigoryan, C.R. Menyuk: *Opt. Lett.* **23**, 609 (1998)
183. A. Berntson, N.J. Doran, W. Forysiak, J.H.B. Nijhof: *Opt. Lett.* **23**, 900 (1998)
184. N.J. Smith, W. Forysiak, N.J. Doran: *Electron. Lett.* **32**, 2085 (1996)
185. T. Okamawari, A. Maruta, Y. Kodama: *Opt. Commun.* **149**, 261 (1998)
186. S. Kumar, F. Lederer: *Opt. Lett.* **22**, 1870 (1997)
187. T. Georges, F. Favre, D. Le Guen: *IEICE Trans. Electron.* **E81-C**, 226 (1998)
188. J.N. Kutz, P.K.A. Wai: *IEEE Photon. Technol. Lett.* **10**, 702 (1998)

189. M. Matsumoto, A. Hasegawa: 'Analysis and design of wavelength-division multiplexed dispersion-managed soliton transmission at 40 Gbit/s/ch.' In: *Massive WDM and TDM Soliton Transmission Systems*, ed. by A. Hasegawa (Kluwer, Dordrecht 2000) pp. 195–210
190. T. Okamawari, Y. Ueda, A. Maruta, Y. Kodama, A. Hasegawa: *Electron. Lett.* **33**, 1063 (1997)
191. T. Yu, E.A. Golovchenko, A.N. Pilipetskii, C.R. Menyuk: *Opt. Lett.* **22**, 793 (1997)
192. T. Georges: *J. Opt. Soc. Am. B* **15**, 1553 (1998)
193. M. Matsumoto: *IEEE Photon. Technol. Lett.* **10**, 373 (1998)
194. S. Alleston, I. Penketh, P. Harper, A. Niculae, I. Bennion, N.J. Doran: 1999 Optical Fiber Communication Conference, WC4 (1999)
195. M. Matsumoto, H. Kurokawa, Y. Kodama, A. Hasegawa: *Opt. Commun.* **155**, 28 (1998)
196. T. Inoue, H. Sugahara, A. Maruta, Y. Kodama: *IEEE Photon. Technol. Lett.* **12**, 299 (2000)
197. A.H. Liang, H. Toda, A. Hasegawa: *Opt. Lett.* **24**, 799 (1999)
198. T. Hirooka, T. Nakada, A. Hasegawa: *IEEE Photon. Technol. Lett.* **12**, 633 (2000)
199. M. Matsumoto: 'Simulation study of high-speed wavelength-division multiplexed soliton transmission,' In: *Workshop on High Capacity Undersea Cable Transmission Networks*, 2000 Optical Fiber Communication Conference, W207-8 (2000)
200. A. Sano, Y. Miyamoto, T. Kataoka, K. Hagimoto: *J. Lightwave Technol.* **16**, 977 (1998)
201. I. Morita, K. Tanaka, N. Edagawa, M. Suzuki: 1998 European Conference on Optical Communication, PD2 (1998)
202. I. Morita, K. Tanaka, N. Edagawa, M. Suzuki: *J. Lightwave Technol.* **17**, 2506 (1999)
203. H. Anis, G. Berkey, G. Bordogna, M. Cavallari, B. Charbonnier, A. Evans, I. Hardcastle, M. Jones, G. Pettitt, B. Shaw, V. Srikant, J. Wakefield: 1999 European Conference on Optical Communications, **1**, 230 (1999)
204. W.I. Kaechele, M.L. Dennis, R. Jenkins, T.F. Carruthers, I.N. Duling, III: 2000 Optical Fiber Communication Conference, TuP3 (2000)
205. W.I. Keachele, M.L. Dennis, T.F. Carruthers, I.N. Duling: 2000 European Conference on Optical Communication, **2**, 137 (2000)
206. L.F. Mollenauer, P.V. Mamyshev: *IEEE J. Quant. Electron.* **34**, 2089 (1998)
207. H. Sugahara, H. Kato, Y. Kodama: *Electron. Lett.* **33**, 1065 (1997)
208. J.F.L. Devaney, W. Forysiak, A.M. Niculae, N.J. Doran: *Opt. Lett.* **22**, 1695 (1997)
209. H. Sugahara, H. Kato, T. Inoue, A. Maruta, Y. Kodama: *J. Lightwave Technol.* **17**, 1547 (1999)
210. D.J. Kaup, B.A. Malomed, J. Yang: *Opt. Lett.* **23**, 1600 (1998)
211. D.J. Kaup, B.A. Malomed, J. Yang: *J. Opt. Soc. Am. B* **16**, 1628 (1999)
212. A. Mecozzi: *J. Opt. Soc. Am. B* **15**, 152 (1998)
213. M. Murakami, H. Maeda, and T. Imai: *IEEE Photon. Technol. Lett.* **11**, 898 (1999)
214. H. Sugahara, K. Fukuchi, A. Tanaka, Y. Inada, T. Ono: 2002 Optical Fiber Communication Conference, FC6 (2002)
215. S. Wabnitz, F. Neddard: *Opt. Commun.* **183**, 395 (2000)
216. D. Le Guen, S. Del Burgo, M.L. Moulinard, D. Grot, M. Henry, F. Favre, T. Georges: 1999 Optical Fiber Communication Conference, PD4 (1999)

217. K. Fukuchi, M. Kakui, A. Sasaki, T. Ito, Y. Inada, T. Tsuzaki, T. Shitomi, K. Fujii, S. Shikii, H. Sugahara, A. Hasegawa: 1999 European Conference on Optical Communication, PD2-10 (1999)
218. K. Suzuki, H. Kubota, M. Nakazawa: 2001 Optical Fiber Communication Conference, TuN7 (2001)
219. E.A. De Souza, M.C. Nuss, W.H. Knox, D.A.B. Miller: *Opt. Lett.* **10**, 1166 (1995)
220. M.J. Guy, S.V. Chernikov, J.R. Taylor: *IEEE Photon. Technol. Lett.* **9**, 1017 (1997)
221. K.L. Hall, G. Lenz, E.P. Ippen: *J. Lightwave Technol.* **10**, 616 (1992)
222. K.J. Weingarten, M.J.W. Rodwell, D.M. Bloom: *IEEE J. Quant. Electron.* **24**, 198 (1988)
223. T. Kanada, D.L. Franzen: *Opt. Lett.* **11**, 4 (1986)
224. H. Takara, S. Kawanishi, M. Saruwatari: *Electron. Lett.* **32**, 1399 (1996)
225. K. Kikuchi: *Electron. Lett.* **34**, 1354 (1998)
226. T.R. Clark, Jr., M.L. Dennis: *IEEE Photon. Technol. Lett.* **13**, 236 (2001)
227. A.E. Siegman: *Lasers* (University Science Books, Mill Valley 1986)
228. H.A. Haus: *IEEE J. Sel. Topics Quant. Electron.* **6**, 1173 (2000)
229. L.F. Mollenauer, R.H. Stolen: *Opt. Lett.* **9**, 13 (1984)
230. H.A. Haus, M.N. Islam: *IEEE J. Quant. Electron.* **QE-21**, 1172 (1985)
231. K.J. Blow, D. Wood: *J. Opt. Soc. Am. B* **5**, 629 (1988)
232. K.J. Blow, B.P. Nelson: *Opt. Lett.* **13**, 1026 (1988)
233. M. Morin, M. Piché: *Opt. Lett.* **14**, 1119 (1989)
234. P.A. Bélanger: *J. Opt. Soc. Am. B* **8**, 2077 (1991)
235. E.P. Ippen, H.A. Haus, L.Y. Liu: *J. Opt. Soc. Am. B* **8**, 2077 (1991)
236. K. Smith, J.R. Armitage, R. Wyatt, N.J. Doran: *Electron. Lett.* **26**, 1149 (1990)
237. J.D. Kafka, T. Bear, D.W. Hall: *Opt. Lett.* **14**, 1269 (1989)
238. T.F. Carruthers, I.N. Duling III: *Opt. Lett.* **21**, 1927 (1996)
239. G.T. Harvey, L.F. Mollenauer: *Opt. Lett.* **18**, 107 (1993)
240. M. Nakazawa, E. Yoshida, Y. Kimura: *Electron. Lett.* **30**, 1603 (1994)
241. F.X. Kärtner, D. Kopf, U. Keller: *J. Opt. Soc. Am. B* **12**, 486 (1995)
242. D.J. Richardson, R.I. Laming, D.N. Payne, V.J. Matsas, M.W. Phillips: *Electron. Lett.* **27**, 1451 (1991)
243. J.P. Gordon: *J. Opt. Soc. Am. B* **9**, 91 (1992)
244. N. Pandit, D.U. Noske, S.M.J. Kelly, J.R. Taylor: *Electron. Lett.* **28**, 455 (1992)
245. S.M.J. Kelly: *Electron. Lett.* **28**, 806 (1992) and errata *Electron. Lett.* **28**, 1562 (1992)
246. N.J. Smith, K.J. Blow, I. Andonovic: *J. Lightwave Technol.* **10**, 1329 (1992)
247. D.U. Noske, N. Pandit, J.R. Taylor: *Electron. Lett.* **28**, 2185 (1992)
248. D.U. Noske, J.R. Taylor: *Electron. Lett.* **29**, 2200 (1993)
249. K. Tamura, C.R. Doerr, H.A. Haus, E.P. Ippen: *IEEE Photon. Technol. Lett.* **6**, 697 (1994)
250. H.A. Haus, K. Tamura, L.E. Nelson, E.P. Ippen: *IEEE J. Quant. Electron.* **31**, 591 (1995)
251. K. Tamura, E.P. Ippen, H.A. Haus, L.E. Nelson: *Opt. Lett.* **18**, 1080 (1993)
252. T.R. Clark, T.F. Carruthers, P.J. Matthews, I.N. Duling III: *Electron. Lett.* **35**, 720 (1999)
253. L.F. Mollenauer, R.H. Stolen, J.P. Gordon, W.J. Tomlinson: *Opt. Lett.* **8**, 289 (1983)
254. R.H. Stolen, J. Botineau, A. Ashkin: *Opt. Lett.* **7**, 512(1982)
255. K.J. Blow, N.J. Doran, D. Wood: *J. Opt. Soc. Am. B* **5**, 381 (1988)

256. H.H. Kuehl: J. Opt. Soc. Am. B **5**, 709 (1988)
257. S.V. Chernikov, P.V. Mamyshev: J. Opt. Soc. Am. B **8**, 1633 (1991)
258. E.M. Dianov, A.B. Grudinin, A.P. Prokhorov, V.N. Serkin: 'Non-linear transformation of laser radiation and generation of Raman solitons in optical fibers,' In: *Optical Solitons – Theory and Experiment*, ed. by J.R. Taylor (Cambridge University Press, Cambridge 1992)
259. K.R. Tamura, M. Nakazawa: IEEE Photon. Technol. Lett. **11**, 319 (1999)
260. K.R. Tamura, M. Nakazawa: IEEE Photon. Technol. Lett. **11**, 230 (1999)
261. K.J. Blow, N.J. Doran, B.K. Nayer: Opt. Lett. **14**, 754 (1989)
262. M.N. Islam, E.R. Sunderman, R.H. Stolen, W. Pleibel, J.R. Simpson: Opt. Lett. **14**, 811 (1989)
263. A. Lattes, H.A. Haus, F.J. Leonberger, E.P. Ippen: IEEE J. Quant. Electron. **QE-19**, 1718 (1983)
264. N. J. Doran, D. Wood: J. Opt. Soc. Am. B **4**, 1843 (1987)
265. A.L. Steele: Electron. Lett. **29**, 1972 (1993)
266. W.S. Wong, S. Namiki, M. Margalit, H.A. Haus, E.P. Ippen: Opt. Lett. **22**, 1150 (1997)
267. M. Matsumoto, T. Ohishi: Electron. Lett. **34**, 1140 (1998)
268. I.Y. Khrushchev, I.H. White, R.V. Penty: Electron. Lett. **34**, 1009 (1998)
269. M. Jinno: J. Lightwave Technol. **12**, 1648 (1994)
270. K.J. Blow, N.J. Doran, B.P. Nelson: Electron. Lett. **26**, 962 (1990)
271. C. Kolleck, U. Hempelmann: J. Lightwave Technol. **15**, 1906 (1997)
272. B.P. Nelson, N.J. Doran: Electron. Lett. **27**, 204 (1991)
273. T. Yamamoto, E. Yoshida, M. Nakazawa: Electron. Lett. **34**, 1013 (1998)
274. M.N. Islam: *Ultrafast Fiber Switching Devices and Systems* (Cambridge University Press, Cambridge 1992)
275. M.N. Islam: Opt. Lett. **15**, 417 (1990)
276. M.N. Islam: Opt. Lett. **16**, 1490 (1991)
277. D.N. Christodoulides, R.I. Joseph: Phys. Rev. Lett. **62**, 1746 (1989)
278. A.B. Aceves, S. Wabnitz: Phys. Lett. A **141**, 37 (1989)
279. C.M. deSterke, J.E. Sipe: Prog. Opt. **33**, 203 (1994)
280. B.J. Eggeleton, C.M. de Sterke, R.E. Slusher: J. Opt. Soc. Am. B **14**, 2980 (1997)
281. R.H. Goodman, M.I. Weinstern, P.J. Holmes: J. Nonlinear Sci. **11**, 123 (2001)
282. J.D. Joannopoulos, R.D. Meade, J.N. Winn: *Photonic Crystals: Modeling the Flow of Light*, (Princeton University Press, Princeton NJ 1995)
283. J.C. Knight, J. Broeg, T.A. Birks, P.S.J. Russell: Science **282**, 1476 (1998)
284. J.K. Ranka, R.S. Windeler, A.J. Stentz: Opt. Lett. **25**, 25 (2000)
285. T.P. White, R.C. McPhedran, C.M. de Sterke, L.C. Botten and M.J. Steel: Opt. Lett. **26**, 1660 (2001)

Index

- acoustic effect 93
- all-optical transmission 21, 61, 67
- amplified spontaneous emission (ASE) 81, 123, 144
- amplitude instability 84
- angular frequency 3
- arrayed waveguide grating (AWG) 167

- birefringence 103, 111, 115
 - in group velocity 106
 - linear 103, 105
 - randomly-varying 111, 115
 - vector 113
- Bragg
 - reflection 184
 - resonance 180

- chirp 26, 27
- chirped fiber grating 127, 136, 138, 178
- clock extraction 85
- collision
 - complete 161
 - incomplete 161
- conserved quantities 44, 49
 - energy 44
 - Hamiltonian 44
 - momentum 44
- convolution integral 54
- cross-phase modulation (XPM) 88, 125, 146, 159, 179
- cutoff frequency 17

- delayed nonlinear response 104
- demultiplexer 179
- dielectric
 - constant 13
 - of vacuum 11
 - material 11
 - waveguide 15
- differential group delay (DGD) 112

- dispersion 5, 14
 - anomalous 22, 25, 32
 - compensation 127
 - higher-order 97, 100
 - nonlinear 97
 - normal 22, 25, 32, 47
 - of group velocity 21
 - of phase velocity 6
 - relation 18, 34, 39, 40
 - slope 55, 152, 176
 - third-order 176
- dispersion management
 - dense 151, 157
 - densely dispersion-managed soliton (DDMS) 151
 - dispersion-managed soliton (DMS) 121, 127, 133, 141, 159, 173
 - map depth 142
 - map strength 142, 148, 151
 - critical 143
- dispersive effect of Kerr coefficient 55
- dispersive radiation 43, 79, 117, 124
- displacement 11
 - vector 12
- dissipation 5, 52
- distance
 - collapse 150
 - collision 125, 160, 164
 - dispersion 24, 28, 44
- distributed fiber amplifier 175
- distribution
 - Gaussian 114
 - Maxwellian 114
- doubly periodic dispersion management 164
- dynamical equation 51, 113, 129

- effective cross section 24
- eigen axis 111
- eigenfunction 8, 16, 41
- eigenvalue 8, 41, 112, 138
 - equation 17, 42, 55

- problem 7
- electric displacement vector 11
- electric field 11
- electrostriction 93
- energy enhancement 141, 146, 152
- erbium doped fiber amplifier (EDFA)
 - 21, 61, 62, 67
 - C band 166
 - L band 166
- Euler equation 50, 108, 131
- excess gain 78

- fiber
 - dispersion-compensating fiber (DCF) 156
 - dispersion-decreasing fiber (DDF) 124, 126, 159, 175, 176
 - dispersion-flattened fiber (DFF) 152, 176
 - dispersion-shifted fiber (DSF) 24, 27, 28, 55, 62, 156
 - holey 184
 - loss 52, 58
 - microstructure 184
 - photonic crystal 184
 - polarization-maintaining 113
 - single-mode 18, 111
 - standard single-mode fiber (SMF) 24, 27, 28
- filter
 - Bessel 154
 - Butterworth 81
 - sliding-frequency 79–81
- four-wave mixing (FWM) 125, 127, 151, 159
- Fourier
 - amplitude 12
 - mode 7, 10
 - spectrum 21
 - transform 13, 25
 - transform limited pulse 58
- frequency gap 181
- full width at half maximum (FWHM) 57, 142
- function
 - Bessel 16, 17
 - Hankel 17
 - Hermite–Gaussian 129
- functional derivative 50, 51

- g factor 24
- Galilei transformation 31, 46
- Gaussian function 131

- generating function 69
- generation of continuum 186
- Gordon–Haus timing jitter 71, 91, 93, 123, 141, 144, 164
- group delay 21, 27
- group velocity 20

- Hamilton equation of motion 38
- Hamiltonian
 - form 30, 69
 - structure 69, 129
- higher-order terms 97

- index of refraction 14, 181
- intensity discriminator 179
- inter-symbol interference 155
- interferometer
 - fiber loop 87
 - Mach–Zehnder 65, 178
- internal mode 121
- inverse scattering method 7, 31, 41, 46, 173
 - perturbed 49
 - reflection coefficient 8
 - scattering data 8
 - transmission coefficient 8
- isotropic medium 105

- Kerr effect 15, 22, 54
- Korteweg de Vries (KdV) equation 6

- Lagrangian
 - density 49, 107, 130, 149
 - method 49, 107, 129
 - time-averaged 108
- Langevin equation 72
- laser
 - color-center 58, 65
 - fiber soliton 171
 - figure of eight 171
 - sigma 171
 - soliton 170
- Lax method 8, 41
- Lie transformation 61, 68
- linear harmonic oscillator 137
- logic gate
 - soliton dragging 179
 - soliton interaction 179
- Lorentz force 12

- magnetix flux density vector 11
- Manakov equation 117
- Manakov–PMD equation 117
- master equation 19

- Maxwell equations 13, 16, 54
- method of steepest descent 107
- mid-point spectral inversion 127
- mode
 - hybrid 18
 - polarization 103
 - transverse electric (TE) 16, 54
 - transverse magnetic (TM) 16, 54
- mode locking
 - active 82, 169
 - additive-pulse 170
 - coupled-cavity 170
 - interferential 170
 - passive 86, 169
 - stretched-pulse 173
- modulational instability 32, 33, 38
 - growth rate 34
 - induced 37
- molecular resonance absorption 19
- multi-stable soliton transmission 87
- multimode guide 18
- mutual trapping 107, 109

- nonlinear
 - directional coupler 89
 - gain 86
 - polarization rotation 89
- nonlinear loop mirror 170
 - dispersion-imbalanced (DI) NOLM 176, 178
 - nonlinear amplifying loop mirror (NALM) 87, 178
 - nonlinear optical loop mirror (NOLM) 87, 177
- nonlinear Schrödinger equation (NLSE) 8, 19, 23, 25, 29, 41, 42, 75, 126, 173
 - coupled 107
 - modified 97
 - perturbed 49
- nonlinearity
 - cubic 14
 - nonlocal 129

- optical sampling 179
- optical switch
 - optically-controlled 179
 - self switch 179
- optical time division multiplexing (OTDM) 156, 174

- permittivity 13
- perturbation method 49, 53, 91
 - reductive 54
- phase velocity 4

- Planck constant 13
- plane wave 13, 18
- plasma frequency 13
- polarization 11, 12
 - current 11
 - nonlinear 103
- polarization hole-burning 156
- polarization interleave multiplexing 166
- polarization scrambling 156
- polarization-mode dispersion (PMD) 103, 111, 152
 - higher-order 113
 - parameter 115
 - polarization dispersion vector 113
- potential 11, 86, 109
 - parabolic 137
- principal state of polarization (PSP) 111
- propagation constant 105, 138
- pulse compression 173
 - adiabatic 175
 - higher-order soliton 173
 - soliton effect 184
- pulse-to-pulse interaction 139, 149, 151, 157, 164, 173

- Q factor 154
- quasi-phase matching 126

- Raman
 - amplification 61, 62, 82, 166
 - amplifier 67
 - effect 12, 54
 - gain 56
 - self Raman frequency shift 176
 - self-induced Raman effect 56, 97, 186
 - stimulated Raman scattering 98
- Rayleigh scattering 18, 19
- regeneration 21, 61
 - all-optical 179
- repeater 21
- resonant absorption 18

- saturable absorber 86, 88, 89, 169, 179
 - quantum-well 89
- self-induced Raman effect 56, 97
- self-phase modulation (SPM) 22, 27, 87, 177
- sideband instability 171
- signal format
 - analog 20

- chirped return to zero (CRZ) 154
- digital 20
- duo-binary 20
- not return to zero (NRZ) 20, 68
- return to zero (RZ) 20, 125
- softening 14
- solitary wave solution 7, 31
- soliton 7
 - dark 32, 45
 - dressed 70
 - envelope 32
 - fission of 99
 - gap 180
 - guiding-center 53, 64, 68, 70, 129
 - higher-order 173
 - N-soliton solution 9
 - nontopological 46
 - optical 14
 - path-averaged 69
 - period 44, 64, 171
 - quasi 136
 - self-induced transparency 182
 - solution 9, 31
 - topological 46
- speed of light 13
- stimulated Brillouin scattering 34, 38, 63, 66
- Stokes signal 56
- Stokes vector 112
- synchronous amplitude modulation 83, 91
- Taylor expansion 23
- third-order nonlinear susceptibility 104
- time division multiplexing (TDM) 169
- total reflection 15
- transmission control of soliton 77
 - by means of nonlinear gain 86
 - in frequency domain 77
 - in time domain 82
- variational method 148
- wave
 - function 8
 - kinetic equation 38
 - number 4, 8, 14, 15, 22-24
 - vector 4
- waveguide 15, 53
- wavelength 4
 - converter 179
 - division multiplexing (WDM) 74, 82, 124, 169
- Wigner distribution function 40



Location: <http://www.springer.de/phys/>

***You are one click away
from a world of physics information!***

***Come and visit Springer's
Physics Online Library***

Books

- Search the Springer website catalogue
- Subscribe to our free alerting service for new books
- Look through the book series profiles

You want to order?

Email to: orders@springer.de

Journals

- Get abstracts, ToC's free of charge to everyone
- Use our powerful search engine LINK Search
- Subscribe to our free alerting service LINK Alert
- Read full-text articles (available only to subscribers of the paper version of a journal)

You want to subscribe?

Email to: subscriptions@springer.de

Electronic Media

- Get more information on our software and CD-ROMs

You have a question on
an electronic product?

Email to: helpdesk-em@springer.de

.....● Bookmark now:

http://www.springer.de/phys/

Springer · Customer Service
Haberstr. 7 · 69126 Heidelberg, Germany
Tel: +49 (0) 6221 - 345 - 217/8
Fax: +49 (0) 6221 - 345 - 229 · e-mail: orders@springer.de

d&p · 6437.MNT/Sfb



Springer