

# List of Publications of Chio Z. (Frank) Cheng

last updated in June, 2004

1. Ordinary Electromagnetic Mode Instability  
C. Z. Cheng  
J. Plasma Phys., 13, 335-348 (April, 1975).
2. The Integration of The Vlasov Equation in Configuration Space  
C. Z. Cheng and G. Knorr  
J. Comput. Phys., 22, 330-351 (March, 1976).
3. Nonlinear Propagation of Lower Hybrid Waves in a Plasma  
P. K. Kaw, C. Z. Cheng, and L. Chen  
Princeton Plasma Physics Laboratory Report PPPL-1305 (1976), 14pp.
4. New Three-Dimensional Simulation Models for Cylindrical and Toroidal Plasma  
C. Z. Cheng and H. Okuda  
J. Comput. Phys., 25, 133-150 (February, 1977).
5. The Integration of Vlasov Equation for a Magnetized Plasma  
C. Z. Cheng  
J. Comput. Phys., 24, 348-360 (April, 1977).
6. Formation of Convective Cells, Anomalous Diffusion and Strong Plasma turbulence  
Due to Drift Instabilities  
C. Z. Cheng and H. Okuda  
Phys. Rev. Lett., 38, 708-711 (July, 1977).
7. Nonlinear Excitation of Convective Cells by Mode Coupling of Drift Waves  
H. Okuda and C. Z. Cheng  
Princeton Plasma Physics Laboratory Report PPPL-1328 (1977), 15pp.
8. Correlations Between Drift Wave Theory, Particle Simulations, and the Observed  
Anomalous Transport in Tokamaks  
W. H. Horton, Jr., H. Okuda, C. Z. Cheng, Y. Y. Kuo, W. W. Lee, Y. Matsuda, and  
M. True  
in "Proceedings of the Sixth International Conference on Plasma Physics and Con-  
trolled Nuclear Fusion Research" (IAEA, Vienna, 1977) Vol. II, p. 467-478.
9. Higher Order Multipoles and Splines in Plasma Simulations  
H. Okuda and C. Z. Cheng  
Comput. Phys. Comm., 14, 169-176 (March, 1978).
10. Theory and Numerical Simulations on Collisionless Drift Instabilities in Three Dimen-  
sions  
C. Z. Cheng and H. Okuda  
Nucl. Fusion, 18, 587-607 (May, 1978).

11. Numerical Simulation of Trapped Electron Instabilities in Toroidal Geometry  
 C. Z. Cheng and H. Okuda  
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*Phys. Rev. Lett.*, 41, 1116-1119 (August, 1978).
12. Theory of Drift and Trapped Electron Instabilities  
 L. Chen, C. Z. Cheng, E. A. Frieman, P. Guzdar, P. K. Kaw, W. W. Lee, W. Nevins,  
 C. R. Oberman, H. Okuda, G. REwoldt, P. H. Rutherford, W. Tang, and R. B. White  
 in "Proceedings of the Seventh International Conference on Plasma Physics and Con-  
 trolled Nuclear Fusion Research" (IAEA, Vienna, 1979), Vol. I, p. 763-775.  
 Princeton Plasma Physics Laboratory Report PPPL-1467 (1978), 15pp.
13. Electrostatic and Magnetostatic Particle Simulation Models in Three Dimensions  
 H. Okuda, W. W. Lee, and C. Z. Cheng  
*Comput. Phys. Comm.*, 17, 233-238 (March, 1979).
14. Absolute Dissipative Drift-Wave Instabilities in Tokamaks  
 L. Chen, M. S. Chance, and C. Z. Cheng  
*Nucl. Fusion*, 20, 901-905 (July, 1980).
15. Unstable Universal Drift Eigenmodes in Toroidal Plasmas  
 C. Z. Cheng and L. Chen  
*Phys. Fluids*, 23, 1770-1773 (September, 1980).
16. Theory of Drift-Wave Eigenmodes in Toroidal Plasmas  
 L. Chen and C. Z. Cheng  
*Phys. Fluids*, 23, 2242-2249 (November, 1980).
17. Ballooning Mode Theory of Drift-Waves and Trapped-Electron Modes in Tokamaks  
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 in Proceedings of the International Conference on Plasma Physics, Nagoya, Japan  
 1980, Vol. I, p. 262.  
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18. Theory of Drift, Trapped-Particle, and Alfvén Instabilities and Anomalous Plasma  
 Transports  
 L. Chen, M. S. Chance, C. Z. Cheng, E. A. Frieman, P. K. Kaw, W. W. Lee, H. Okuda,  
 G. Rewoldt, P. H. Rutherford, W. M. Tang, P. N. Guzdar, Y. C. Lee, R. Marchand,  
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 trolled Nuclear Fusion Research" (IAEA, Vienna, 1981), Vol. I, p. 557-570.  
 Princeton Plasma Physics Laboratory Report PPPL-1675 (1980), 14pp.
19. Ballooning Mode Theory of Trapped-Particle Instabilities in Tokamak  
 C. Z. Cheng and L. Chen  
*Nucl. Fusion*, 21, 403-408 (March, 1981).

20. Anomalous Diffusion and Ion Heating in the Presence of Electrostatic Hydrogen Cyclotron Instabilities  
 H. Okuda, C. Z. Cheng, and W. W. Lee  
 Phys. Rev. Lett., 46, 427-430 (June, 1981).  
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21. Numerical Simulations on Electrostatic Hydrogen Cyclotron Instabilities  
 H. Okuda, C. Z. Cheng, and W. W. Lee  
 Phys. Fluids, 24, 1060-1068 (June, 1981).
22. Electrostatic Drift Wave Eigenmodes in Tokamaks  
 C. Z. Cheng and K. T. Tsang  
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23. Acceleration of Heavy Ions on Auroral Field Lines  
 M. Ashour-Abdalla, H. Okuda, and C. Z. Cheng  
 Geophys. Res. Lett., 8, 795-799 (July, 1981).
24. Stability of Hot Electron Plasma in the Elmo Bumpy Torus  
 K. T. Tsang and C. Z. Cheng  
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25. Analytical Theory of Interchange and Compressional Alfvén Instability in EBT  
 C. Z. Cheng and K. T. Tsang  
 in "Proceedings of the Workshop on EBT Stability Theory", edited by N. A. Uckan, Oak Ridge National Laboratory (1981), p. 161-177.  
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26. Absolute Dissipative Drift Wave Instabilities in Tokamaks - Reply  
 C. Z. Cheng, L. Chen, and M. S. Chance  
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27. Kinetic Theory of Collisionless Ballooning Modes  
 C. Z. Cheng  
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28. High-n Collisionless Ballooning Modes in Axisymmetric Toroidal Plasmas  
 C. Z. Cheng  
 Nucl. Fusion, 22, 773-781 (June, 1982).
29. EBT Stability Theory  
 H. L. Berk, J. W. Van Dam, M. N. Rosenbluth, and C. Z. Cheng  
 Nuclear Instruments Methods, 207, 267-270 (January, 1983).
30. Curvature-Driven Instabilities in the Elmo Bumpy Torus  
 H. Abe, H. L. Berk, C. Z. Cheng, M. N. Rosenbluth, J. W. Van Dam, D. A. Spong, N.

A. Uckan, T. M. Antonsen, Jr., Y. C. Lee, K. T. Tsang, P. J. Catto, X. S. Lee, K. T. Nguyen, and T. Kamash  
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31. Finite Larmor Radius Stability Theory of EBT Plasmas  
H. L. Berk, C. Z. Cheng, M. N. Rosenbluth, and J. W. Van Dam  
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32. Drift Wave Turbulence in Axisymmetric Tokamaks  
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33. Shear Alfvén Waves and Ballooning Modes in Tokamaks  
C. Z. Cheng, L. Chen, M. S. Chance, G. Rewoldt, and W. M. Tang  
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34. Tail Field Effects on Drift Mirror Instability  
C. S. Lin and C. Z. Cheng  
J. Geophys. Res., 89, 10771-10778 (December, 1984).
35. Unstable Toroidal Shear Alfvén Waves Due to Energetic Particles  
C. Z. Cheng, L. Chen, and M. S. Chance  
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36. Theory and Simulation of Fishbone-Type Instabilities in Beam Heated Tokamaks  
L. Chen, R. B. White, C. Z. Cheng, F. Romanelli, J. Weiland, R. Hay, J. W. Van Dam, M. N. Rosenbluth, S. T. Tsai, and D. C. Barnes  
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37. Anomalous Transport and Confinement Scaling Studies in Tokamaks  
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38. High-n Ideal and Resistive Shear Alfvén Waves in Tokamaks  
C. Z. Cheng, L. Chen, and M. S. Chance  
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39. Kinetic Analysis of MHD Ballooning Modes in Tokamaks  
W. M. Tang, G. Rewoldt, C. Z. Cheng, and M. S. Chance  
Nucl. Fusion, 25, 151-164 (February, 1985).

40. A Nonvariational MHD Stability Code for Axisymmetric Toroidal Plasmas  
 C. Z. Cheng and M. S. Chance  
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41. Low-n Shear Alfvén Spectra in Axisymmetric Toroidal Plasmas  
 C. Z. Cheng and M. S. Chance  
 Phys. Fluids, 29, 3695-3701 (November, 1986).
42. MHD Stable Regime of the Tokamak  
 C. Z. Cheng, H. P. Furth, and A. H. Boozer  
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43. NOVA: A Nonvariational Code for Solving MHD Stability of Axisymmetric Toroidal Plasmas  
 C. Z. Cheng and M. S. Chance  
 J. Comput. Phys., 71, 124-146 (July, 1987).
44. Eigenmode Analysis of Compressional Waves in the Magnetosphere  
 C. Z. Cheng and C. S. Lin  
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45. Neoclassical Diffusion of Heavy Impurities in a Rotating Tokamak Plasma  
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46. Stability of the Tokamak in  $q(0) < 1$  Regime  
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48. Kinetic-MHD Stability Calculations for Toroidal Plasmas Using the NOVA-K Code  
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49. Stability of TFTR Plasmas  
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50. MHD Alfvén Stability in Ignited Toroidal Plasmas  
 G. Y. Fu, J. W. Van Dam, M. N. Rosenbluth, D. W. Ross, Y. Z. Zhang, H. L. Berk, S.

M. Mahajan, C. Z. Cheng, R. L. Miller, X. H. Wang, A. Bhattacharjee, M. E. Mauel, and B. Breizman

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51. Numerical Solutions of Magnetohydrodynamic Stability of Axisymmetric Toroidal Plasmas Using Cubic B-Spline Finite Element Method  
C. Z. Cheng  
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53. Axisymmetric Beam-Driven Modes During High Power NBI in TFTR  
E. D. Fredrickson, K. M. McGuire, R. J. Goldston, and C. Z. Cheng  
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54. Orbit Effects on Impurity Transport in a Rotating Tokamak Plasma  
K. L. Wong and C. Z. Cheng  
Phys. Fluids B, 1, 545-554 (March, 1989).
55. Observation and Theory of Compressional Pc 5 Waves with Second-Harmonic Component  
K. Takahashi, C. Z. Cheng, R. W. McEntire, T. A. Potemra, and L. M. Kistler  
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56. Theory of High-n Toroidicity-Induced Shear Alfvén Eigenmode in Tokamaks  
G. Y. Fu and C. Z. Cheng  
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57. Energetic Particle Effects on Global Magnetohydrodynamic Modes  
C. Z. Cheng  
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58. Thermonuclear Instability of Global-Type Shear Alfvén Modes  
J. W. Van Dam, G. Y. Fu, and C. Z. Cheng  
Fusion Technology, 18, 461-474 (November, 1990).
59. Alpha Particle Effects on Low-n Magnetohydrodynamic Mode  
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60. Physics Objectives and Design of CIT  
 D. J. Sigmar, G. Bateman, M. G. Bell, B. J. Braams, J. N. Brooks, C. Z. Cheng, D. R. Cohn, P. L. Colestock, R. J. Goldston, et al.  
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61. Local Transport Measurements During Auxiliary Heating in TFTR  
 S. D. Scott, C. W. Barnes, L. R. Grisham, G. Hammet, D. W. Johnson, Y. Kusama, M. C. Zarnstorff, S. Zweben, M. Bell, M. Bitter, R. Boivin, R. Budny, C. Bush, A. Cavallo, C. Z. Cheng, V. Decaux, P. C. Efthimion, R. J. Fonck, E. Fredrickson, R. J. Goldston, B. Grek, R. J. Hawryluk, K. Hill, H. Hsuan, A. Janos, D. Jassby, F. C. Jobes, D. W. Johnson, L. C. Johnson, R. Kaita, S. Kaye, P. H. LaMarche, B. LeBlanc, D. K. Mansfield, D. McCune, K. McGuire, S. S. Medley, D. Mueller, J. Murphy, D. K. Owens, H. Park, F. Perkins, S. Pitcher, A. Ramsey, A. L. Roquemore, J. Schivell, G. L. Schmidt, B. C. Stratton, W. Stodiek, E. Synakowski, W. Tang, G. Taylor, J. Terry, J. R. Timberland, H. Towner, S. von Goeler, R. Waltz, R. Weiland, M. Williams, and, K. M. Young  
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62. Alpha Particle Effects on Global MHD Modes, and Alpha Particle Transport in Ignited Tokamaks  
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63. Limiter H-mode Experiments on TFTR  
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65. Gyrokinetic Simulation of Microinstabilities in High Temperature Tokamaks  
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66. Recent TFTR Results  
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67. Alpha Particle Destabilization of the Toroidicity-Induced Alfvén Eigenmodes  
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68. Overview of TFTR Transport Studies  
 R. J. Hawryluk, V. Arunasalam, C. W. Barnes, M. Beer, M. Bell, H. Biglari, M. Bitter, R. Boivin, N. L. Bretz, R. Budny, C. Bush, C. Z. Cheng, T. K. Chu, S. A. Cohen, S. Cowley, P. C. Efthimion, R. J. Fonck, E. Fredrickson, H. P. Furth, R. J. Goldston, G. Greene, B. Grek, L. R. Grishan, G. W. Hammett, W. Heidbrink, K. Hill, J. Hosea, R. A. Hulse, H. Hsuan, A. Janos, D. Jassby, F. C. Jobes, D. W. Johnson, L. C. Johnson, J. Kesner, C. K. Phillips, S. J. Kilpatrick, H. Kugel, P. H. LaMarche, B. LeBlanc, D. M. Manos, D. K. Mansfield, E. S. Marmar, E. Mazzucato, M. P. McCarthy, M. Mauel, D. McCune, K. McGuire, D. M. Meade, S. S. Medley, D. R. Mikkelsen, D. Monticello, R. Motley, D. Mueller, Y. Nagayama, F. A. Navratil, R. Nazikian, D. K. Owens, H. Park, W. Park, S. Paul, F. Perkins, S. Pitcher, A. Ramsey, M. H. Redi, G. Rewoldt, D. Roberts, Al. L. Roquemore, P. H. Rutherford, S. Dabbagh, G. Schilling, J. Schivell, G. L. Schmidt, S. D. Scott, J. Snipes, J. Stevens, J. D. Strachan, B. C. Stratton, W. Stodiek, E. Synakowski, Y. Takase, W. Tang, G. Taylor, J. Terry, J. R. Timberland, H. Towner, M. Ulrickson, S. von Goeler, S. Yoshikawa, K. M. Young, M. C. Zarnstorff, and S. Zweben  
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69. A Kinetic-MHD Model for Low Frequency Phenomena  
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70. Magnetospheric Equilibrium with Anisotropic Pressure  
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71. Kinetic Extensions of Magnethydrodynamic Models for Axisymmetric Toroidal Plasmas  
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*Phys. Reports (A Review Sec. of Phys. Letters.)*, 211, 1-51 (February, 1992).

72. Simulation of DT Experiments in TFTR  
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73. High-n Helicity-Induced Shear Alfvén Eigenmodes  
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74. Status and Plans for TFTR  
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75. Alpha Particle Loss from Toroidicity Induced Alfvén Eigenmodes  
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76. Three-Dimensional Hybrid Gyrokinetic-Magnetohydrodynamics Simulation  
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77. Investigation of Global Alfvén Instabilities in the Tokamak Fusion Test Reactor  
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78. Ion Cyclotron Range of Frequencies Stabilization of Sawteeth on Tokamak Fusion Test Reactor  
 C. K. Phillips, J. Hosea, E. Marmar, N. W. Phillips, J. Snipes, J. Stevens, J. Terry, J. R. Wilson, M. Bell, M. Bitter, R. Boivin, C. Bush, C. Z. Cheng, D. Darrow, E. Fredrickson, R. Goldfinger, G. W. Hammett, K. Hill, D. Hoffman, W. Houlberg, H. Hsuan, M. Hughes, D. Jassby, D. McCune, K. McGuire, Y. Nagayama, D. K. Owens, H. Park, A. Ramsey, G. Schilling, J. Schivell, D. N. Smithe, B. Stratton, E. Synakowski, G. Taylor, H. Towner, R. White, S. Zweben, and the TFTR Group  
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79. Alpha Effects on TAE Modes, and Alpha Particle Transport  
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82. Neoclassical Current and Rotation, MHD Stability, and Shear Alfvén Eigenmodes in Heliotron/Torsatron

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