Publication List (1981 to Now)

Yiming Long Chern Institute of Mathematics, Nankai University Tianjin 300071, The People's Republic of China

- 1. On the solvability of Dirichlet problems of linear elliptic equations with coefficients and the free term unbounded near the boundary. *Acta of Tianjin Normal University (Natual Science edition)*. No.1. (1981) 12-18. (in Chinese).
- 2. A note on the exterior Dirichlet problems of nonhomogeneous linear elliptic equations. *Kexue Tongbao*. (Bulletin of science, Academia Sinica). 27(8) (1982) 510-511. (in Chinese).
- 3. Nonlinear boundary value problems of nonlinear elliptic equations. Selections of mathematical research results in Tianjin. ed. by Tianjin mathematical society. (1983) 32-42. (in Chinese).
- 4. (Joint with M. Yao) Dirichlet problems of singular linear elliptic equations. *Acta of Nankai University (Natual science edition)*. 1 (1984) 21-31. (in Chinese).
- 5. On the density of the range for some nonlinear operators. Ann. Inst. H. Poincare. Anal. Non Lineaire. 6(2). 139-151. (1989).
- 6. Multiple solutions of perturbed superquadratic second order Hamiltonian systems. *Trans. Amer. Math. Soc.* 311, 749-780. (1989).
- 7. Periodic solutions of perturbed superquadratic Hamiltonian systems. Ann. Scuola Norm. Sup. Pisa. Series 4. 17. 35-77. (1990).
- 8. Periodic solutions of superquadratic Hamiltonian systems with bounded forcing terms. *Math.* Z. 203. 453-467. (1990).
- 9. (Joint with E. Zehnder), Morse theory for forced oscillations of asymptotically linear Hamiltonian systems. *Stochastic Process, Physics and Geometry*. S. Albeverio et al ed. World Scientific. (Singapo) 528-563.(1990).
- 10. (Joint with K. C. Chang and E. Zehnder), Forced oscillations for the triple pendulum. *Analysis, et cetera*. P.Rabinowitz and E.Zehnder ed. Academic Press. 177-208.(1990).
- 11. Maslov-type index, degenerate critical points, and asymptotically linear Hamiltonian systems. *Science in China.* Series A. (1990). 7. 673-682. (Chinese Ed.). Series A. 33. (1990) 1409-1419. (English Ed.)
- 12. The structure of the singular symplectic matrix set. *Science in China*. Series A. (1991). 5. 457-465. (Chinese Ed.). Series A. 34. (1991) 897-907. (English Ed.)

- 13. A Maslov-type index theory and asymptotically linear Hamiltonian systems. *Dynamical Systems and Related Topics*. K. Shiraiwa ed. World Scientific. (Singapo) 333-341.(1991).
- 14. An unbounded solution of a superlinear Duffing's equation. *Acta Math. Sinica.* (English Ed.) New Series. 7. (1991) 360-369.
- Estimates on the minimal period for periodic solutions of autonomous superquadratic second order Hamiltonian systems. *Nonlinear Analysis and Microlocal Analysis*. K. C. Chang, Y. M. Huang, and T. T. Li ed. World Scientific. (Singapo) (1992) 168-175.
- 16. (Joint with A. Ambrosetti and V. Benci) A note on the existence of multiple brake orbits. Nonlinear Analysis, T. M. A. 21. (1993). 643-649.
- 17. The minimal period problem for classical Hamiltonian systems with even potentials. *Ann. Inst. H. Poincare. Anal. Non Lineaire.* 10. (1993). 605-626.
- 18. The minimal period problem of periodic solutions for autonomous superquadratic second order Hamiltonian systems. J. Diff. Eqns. 111. (1994) 147-174.
- 19. (Joint with E. Zehnder) Remarks on isoenergetic periodic orbits in tori. Advances in dynamical systems and quantum physics. (Capri, 1993), World Sci. (1995) 326-344.
- 20. "Index Theory of Hamiltonian Systems with Applicatins". Science Press. Beijing. (1993).
- 21. Nonlinear oscillations for classical Hamiltonian systems with bi-even subquadratic potentials. *Nonlinear Analysis*, T. M. A. 24. (1995). 1665-1671.
- On C. Conley's conjecture. Proc. Variational and Local Methods in the Study of Hamiltonian Systems. ICTP. (1994). A. Ambrosseti and G. F. Dell'Antonio ed. World Sci. Singapore (1995). 77-98.
- 23. Geodesics in the compactly supported Hamiltonian diffeomorphism group. $Math.\ Z.\ 220.\ (1995).\ 279-294.$
- 24. (Joint with J. Han and Y. Huang) Multiple solutions of a Newman Boundary value problem of a nonlinear elliptic equation. *Acta Nankai Univ.* (Natural Sci. Ed.) 1. (1996) 1-10.
- 25. Periodic solutions of nonlinear Hamiltonian systems. Science Foundations. of China. 9(2). (1995) 22-28.
- (Joint with D. Dong) The iteration formula of Maslov-type index theory with applications to noninear Hamiltonian systems. Nankai Inst. of Math. Preprint. (1993). ICTP Publication (1994). IC/94/318. Trans. Amer. Math. Soc. 349. (1997) 2619-2661.
- 27. On the minimal period for periodic solutions of nonlinear Hamiltonian systems. ICTP Publication (1994). *Chinese Ann. of Math.* Series B. 18. (1997) 481-485.
- 28. (Joint with C. Liu) An optimal increasing estimate for iterated Maslov-type indices. *Chinese Sci. Bull.* 42. (1997) 2275-2277.
- 29. A Maslov-type index theory for symplectic paths. Top. Meth. Nonl. Anal. 10 (1997), 47-78.
- 30. (Joint with T. An) Index theories of second order Hamiltonian systems. *Nonlinear Anal.* T.M.A. 34 (1998) 585-592.

- 31. (Joint with T. An) Indexing the domains of instability for Hamiltonian systems. *NoDEA*. 5. (1998) 461-478.
- 32. (Joint with T. An) The classification of exponential paths in Sp(2n). Advances in Math. (China). 27 (3) (1998) 209-213.
- 33. (Joint with G. Chen), Periodic solutions of second order nonlinear Hamiltonian systems with zero mean value superquadratic potentials. *Chinese Ann. of Math.* 19A. 4 (1998) 525-532.
- 34. Hyperbolic closed characteristics on compact convex smooth hypersurfaces. *J. Diff. Equa.* 150 (1998), 227-249.
- 35. Periodic solutions of nonlinear Hamiltonian systems and its index theory. *Chinese Sci. Found.* 12 (3). (1998) 204-206.
- 36. (Joint with C. Liu) Hyperbolic characteristics on star-shaped hypersurfaces. *Ann. IHP. Anal. nonlineaire* 16 (1999) 725-746.
- 37. The topological structures of ω -subsets of symplectic groups. Acta Math.Sinica. English Series. 15. (1999) 255-268.
- 38. Bott formula of the Maslov-type index theory. Pacific J. Math. 187 (1999), 113-149.
- 39. (Joint with C. Zhu) Maslov-type index theory for symplectic paths and spectral flow (I). *Chinese Ann. of Math.* 208. (1999) 413-424.
- 40. (Joint with S. Zhang) Geometric characterizations for variational minimization solutions of the 3-body problem. *Chinese Sci. Bull.* (Notes) 44.(18) (1999) 1653-1655.
- 41. (Joint with J. Han) Normal forms of symplectic matrices (II). Acta Sci. Nat. Univ. Nankai. 32 (3). (1999) 30-41.
- 42. Ellipticity of closed characteristics on convex compact hypersurfaces in \mathbb{R}^4 . Dynamical Systems Proc. Inter. Conf. In Honor of Prof. Liao Shantao. Ed. By Y. Jiang and L. Wen. Wold Scientific. (1999) 200-207.
- 43. (Joint with C. Zhu) Maslov-type index theory for symplectic paths and spectral flow (II). *Chinese Ann. of Math.* 21 B: 1 (2000) 89-108.
- 44. (Joint with S. Zhang) Geometric characterizations for variational minimization solutions of the 3-body problem with fixed energy. *J. Diff. Equa.* 160 (2000) 422-438.
- 45. Multiple periodic points of the Poincaré map of Lagrangian systems on tori. *Math. Z.* 233 (3). (2000) 443-470.
- 46. Dynamics on compact convex hypersurfaces in \mathbb{R}^{2n} . Progress in Nonlinear Analysis. Proceedings of the Second Internatinal Conference on Nonlinear Analysis at Tianjin. Ed. K. C. Chang and Y. Long. June 1999. World Scientific. (2000) 271-288.
- 47. K.-C. Chang and Y. Long ed. Progress in Nonlinear Analysis. Proceedings of the Second Internatinal Conference on Nonlinear Analysis at Tianjin. June 1999. World Scientific. (2000) 271-288.

- 48. (Joint with X. Xu) Periodic solutions of a class of nonautonomous Hamiltnian systems. *Non-linear Anal. T.M.A.* 41 (2000) 455-463.
- 49. (Joint with D. Dong) Normal forms of symplectic matrices. *Acta Math.Sinica*. 16 (2000) 237-260.
- 50. Precise iteration formulae of the Maslov-type index theory and ellipticity of closed characteristics. *Advances in Math.* 154 (2000) 76-131. (Math. Review, Featured Review 2001j:37111).
- 51. (Joint with C. Liu) Iteration inequalities of the Maslov-type index theory with applications. J. Diff. Equa. 165 (2000) 355-376.
- 52. (joint with S. Zhang) Geometric characterizations for variational minimization solutions of the 3-body problem. *Acta Math. Sinica.* 16 (2000) 579-592.
- 53. (Joint with C. Zhu) The differentiable structure of ω -subsets of symplectic groups. Science in China. Series A. 30 (2001) 680-689.
- 54. (joint with Y. Sun and S. Wu) Combined effects of singular and superlinear nonlinearities in some singular boundary value problems. *J. Diff. Equa.* 176 (2001) 511–531.
- 55. (Joint with C. Zhu) Closed characteristics on compact convex hypersurfaces in \mathbb{R}^{2n} . Annals of Mathematics. 155 (2). (2002). 317-368. (Math. Review, Featured Review 2003e:37083).
- 56. Index Theory for Symplectic Paths with Applications. Progress in Math. 207, Birkhäuser. Basel. 2002.
- 57. (Joint with C. Liu) Iterated Morse index formulae for closed geodesics with applications. *Science in China.* 45. (2002) 9-28.
- 58. (Joint with C. Liu and C. Zhu) Multiplicity of closed characteristics on symmetric convex hypersurfaces in \mathbb{R}^{2n} . Math. Ann. 323 (2002), 201-215.
- (Joint with S. Sun) Planar 4-body central configurations with some equal masses. Arch. Rat. Mech. Anal. 162 (2002) 25-44.
- 60. Index iteration theory for symplectic paths with applications to nonlinear Hamiltonian systems. Proc. of Inter. Congress of Math. 2002 Vol.II, 303-313.2002
- 61. Criterion for $SL(2, \mathbf{Z})$ -matrix to be conjugate to its inverse. (2001) Chinese Ann. Math. 23B (2002) 455-460.
- 62. (Joint with X. Hu) Closed characteristics on non-degenerate star-shaped hypersurfaces in \mathbb{R}^{2n} . Science in China. 45 (2002) 1038-1052.
- 63. (Joint with S. Sun and S. Zhang) Central configurations and linear systems. *Acta Sci. Natural. Univ. Nankai.* 35 (2002) 26-34.
- 64. The Maslov-type index and its iteration theory with applications to Hamiltonian systems. Third School on Nonlinear Analysis and Applications to Differential Equations. (10.12-30,1998). ICTP Lecture Notes. SMR 1071/2. Minimax Theory, Morse Theory and the Applications to Differential Equations. H. Brezis, S. Li, J.-Q. Liu, P. Rabinowitz ed. International Press. (2003) 157-201.

- 65. (Joint with Guangcun Lu) Infinitely many periodic solution orbits of the autonomous Lagrangian systems on tori. Preprint (1999) J. Funct. Anal. 197 (2003) 301-322.
- 66. Admissible shapes of 4-body non-collinear relative equilibria. Advanced Nonlinear Studies. 3 (2003) 495-509.
- 67. (Joint with Yujun Dong) Closed characteristics on partially symmetric convex hypersurfaces in \mathbb{R}^{2n} . J. Diff. Equa. 196 (2004) 226-248.
- 68. (Joint with Yujun Dong) Closed characteristics on asymmetric convex hypersurfaces in \mathbb{R}^{2n} and corresponding pinching conditions. *Acta Math. Sinica.* 20 (2004) 223-232.
- 69. (Joint with Shanzhong Sun) Collinear central configurations and singular hypersurfaces in the mass space. Arch. Rat. Mech. Anal. 173 (2004) 151-167.
- 70. (Joint with Yujun Dong) Stable closed characteristics on partially symmetric convex hypersurfaces in \mathbb{R}^{2n} . J. Diff. Equa. 206 (2004) 265-279.
- 71. Multiplicity of Hamiltonian periodic orbits on prescribed energy surfaces. *Proc. of Second ICCM. December 17-22, 2001.* C.-S. Lin, L. Yang, S. T. Yau ed. Internat. Press. (2004) 101-113.
- 72. (Joint with Congyi Zhou) Homology classes of the circle space on spheres and the discontinuity of deformations. Advanced Nonlinear Studies. 5 (2005) 1-11.
- 73. (Joint with Duanzhi Zhang, Chaofeng Zhu) Multiple brake orbits on bounded convex symmetric domains. *Advances in Math.* 203 (2006) 568-635.
- 74. Multiplicity and stability of closed geodesics on Finsler 2-spheres. *J. of European Math. Soc.* 8 (2006) 341-353.
- 75. Index iteration theory for symplectic paths and multiple periodic solution orbits. Frontiers of Mathematics in China. 1 (2006) 178-201.
- 76. (Joint with Wei Wang) Stability of closed characteristics on compact convex hypersurfaces. The Memorial volume of Professor S. S. Chern. Ed. by P. Griffiths. World Scientific. (Singapore) 2006.
- 77. (Joint with Wei Wang) Multiple closed geodesics on Riemannian 3-spheres. Cal. Variations and PDEs. 30 (2007) 183-214.
- 78. (Joint with Huagui Duan) Multiple closed geodesics on bumpy Finsler *n*-spheres. *J. Diff. Equa.* 233 (2007) 221-240.
- 79. (Joint with Wei Wang, Xijun Hu) Resonance identity, stability and multiplicity of closed characteristics on compact convex hypersurfaces. *Duke Math. J.* 139 (2007) 411-462.
- 80. (Joint with Huagui Duan) Multiplicity and stability of closed geodesics on bumpy Finsler 3-spheres. *Cal. Variations and PDEs.* 31 (2008) 483-496.
- 81. (Joint with Wei Wang) Morse indices of closed geodesics on Katok's 2-spheres. *Advanced Nonlinear Studies* 8 (2008) 569-572.

- 82. (Joint with Wei Wang) Stability of closed geodesics on Finsler 2-spheres. *J. Funct. Anal.* 255 (2008) 620-641.
- 83. (Joint with Victor Bangert) The existence of two closed geodesics on every Finsler 2-sphere. *Math. Ann.* 346 (2010) 335-366.
- 84. (Joint with Huagui Duan) Multiple closed geodesics on 3-spheres. *Advances in Math.* 221 (2009) 1757-1803.
- 85. (Joint with Huagui Duan) Morse concavity of closed geodesics. *Acta Math. Scientia.* 29B (2009) 731-750.
- 86. (Joint with Gaosheng Zhu) Linear stability of some symplectic matrices. Frontiers of Mathematics in China. 5 (2010) 361-368.
- 87. (Joint with Huagui Duan) The index growth and multiplicity of closed geodesics. *J. Funct.*Anal. 259 (2010) 1850-1913.
- 88. (Joint with Hui Qiao) Functional on tori with minimal number of critical points and rotation type solutions of spacially periodic Hamiltonian systems. *Advanced Nonlinear Studies*. 11 (2011) 105-116.
- 89. ω -index theory and linear stability of elliptic Lagrangian solutions of the classical three-body problem. Advanced Nonlinear Studies. 12 (2012), 799-818.
- 90. (Joint with Hui Liu) Resonance identity for symmetric closed characteristics on symmetric convex Hamiltonian energy hypersurfaces and its applications. *J. Diff. Equa.* 255 (2013) 2952-2980.
- 91. (Joint with Ivar Ekeland, Qinglong Zhou) A new class of problems in the calculus of variations. Regular and Chaotic Dynamics. 18, 6 (2013) 553-584.
- 92. (Joint with Hui Liu, Wei Wang) Resonance Identities for Closed Characteristics on Compact Star-shaped Hypersurfaces in \mathbb{R}^{2n} . J. Funct. Anal. 266 (2014) 5598-5638.
- 93. (Joint with Xijun Hu, Shanzhong Sun) Linear stability of elliptic Lagrangian solutions of the planar three-body problem via index theory. Arch. Rat. Mech. Anal. 213 (2014) 993-1045.
- 94. (Joint with Hui Liu, Wei Wang) Non-hyperbolic closed characteristics on symmetric compact convex hypersurfaces in \mathbb{R}^{2n} . Advanced Nonlinear Studies. 14 (2014) 531-546.
- 95. (Joint with Hui Liu, Wei Wang, Pingan Zhang) Symmetric closed characteristics on symmetric compact convex hypersurfaces in \mathbb{R}^8 . Comm. Math. Stat. 2 (2014), 393-411.
- 96. (Joint with Hui Liu) Existence of two closed characteristics on every compact star- shaped hypersurface in \mathbb{R}^4 . Acta Math. Sinica-English Series. DOI: 10.1007/s10114-014-4108-1, (2014)
- 97. (Joint with Qinglong Zhou) Equivalence of linear stabilities of elliptic triangle solutions of the planar charged and classical three-body problems. J. Diff. Equa. 258 (2015) 3851-3879.
- 98. (Joint with Yuming Xiao) Topological structure of non-contractible loop space and closed geodesics on real projective spaces with odd dimensions. *Advances in Math.* 279 (2015) 159-200.

- 99. (Joint with Huagui Duan, Yuming Xiao) Two closed geodesics on $\mathbb{R}P^{2n+1}$ with a bumpy Finsler metric. Calculus of Variations. 54 (2015), 2883-2894.
- 100. (Joint with Jaume Llibre) Periodic solutions for the generalized anisotropic Lennard–Jones Hamiltonian. Qual. Theory Dyn. Syst. 14 (2015), 291-311.
- 101. (Joint with Hui Liu) Resonance identities and stability of symmetric closed characteristics on symmetric compact star-shaped hypersurfaces. *Calculus of Variations*. 54 (2015), 3753-3787.
- 102. Open Problem 2, Questions on the stability problem of periodic solutions in the N-body problem. Qual. Theory Dyn. Syst. 14 (2015), 407-408.
- 103. (Joint with Wentian Kuang) Geometric characterizations for variational minimizing solutions of charged 3-body problems. Frotiers of Math. in China. 11 (2016), 309-321.
- 104. (Joint with Huagui Duan, Wei Wang) Two closed geodesics on compact simply-connected bumpy Finsler manifolds. J. Diff. Geom. 104 (2016), 275-289.
- 105. (Joint with Shanzhong Sun) The stability of the Sun: history and current situation. *Scientia Sinica Mathematica*. 46.5 (2016), 1-9. (in Chinese).
- 106. (Joint with Huagui Duan, Wei Wang) The enhanced common index jump theorem for symplectic paths and non-hyperbolic closed geodesics on Finsler manifolds. *Calc. Var.* 55.145 (2016), DOI 10.1007/s00526-016-1075-7.
- 107. (Joint with Hui Liu) Irrationally elliptic closed characteristics on symmetric compact star-shaped hypersurfaces in \mathbb{R}^4 . J. Fixed Point Theory Appl. 19 (2017), 263-280.
- 108. (Joint with Sai Liu) A new index theory for GL⁺(2)-paths with applications to asymptotically linear systems. J. Diff. Equa. 262 (2017), 4635-4655.
- 109. (Joint with Qinglong Zhou) The reduction of the linear stability of elliptic Euler-Moulton solutions of the *n*-body problem to those of 3-body problems. *Celest. Mech. Dyn. Astr.* 127 (2017), 397-428.
- 110. (joint with Qinglong Zhou) Maslov-type indices and linear stability of elliptic Euler solutions of the three-body problem. *Arch. Rat. Mech. and Anal.*, 226 (2017), 1249-1301, DOI 10.1007/s00205-017-1154-8.
- 111. (Joint with Huagui Duan, Hui Liu and Wei Wang, Non-hyperbolic characteristics on non-degenerate star-shaped hypersurfaces in \mathbb{R}^{2n} . Acta Math. Sinica. English Series. 34(1),(2018), 1-18.
- 112. (Joint with Hui Liu and Yumin Xiao, The existence of two non-contractible closed geodesics on every bumpy Finsler compact space form. *Disc. Cont. Dyna. Syst.* 38(8),(2018), 3803-3829.
- 113. (Joint with Bowen Liu and Chongchun Zeng, Solutions of the generalized Lennard-Jones system. *Acta Math. Sinica*. English Series. 34(2),(2018), 139-170.
- 114. (Joint with Yinshan Chang and Jian Wang, On bifurcation of eigenvalues along convex symplectic paths. Ann. IHP.-AN. 36,(2019), 75-102.
- 115. (Joint with Yucheng Wang and Chongchun Zeng) Concentrated steady vorticities of the Euler equation on 2-d domains and their linear stability. *J. Diff. Equa.* 266 (2019), 6661-6701.

- 116. (Joint with Xijun Hu and Yuwei Ou) Linear stability of the elliptic relative equilibrium with (1+n)-gon central configurations in planar n-body problem. *Nonlinearity* 33 (2020), 1016C1045, https://doi.org/10.1088/1361-6544/ab5927.
- 117. (Joint with Huagui Duan and Chaofeng Zhu) Index iteration theories for periodic orbits: Old and new. Nonlinear Analysis 201 (2020) 111999.
- 118. (Joint with Chungen Liu and Duanzhi Zhang) Index Iteration Theory for Brake Orbit Type Solutions and Applications. *Anal. Theory Appl.*, 37 (2021), 129-156. DOI: 10.4208/ata.OAs05.
- 119. The Rabinowitz minimal periodic solution conjecture. *Inter. J. of Math.* (2021) 2140010 (21 pages) DOI: 10.1142/S0129167X21400103.