Chong Qi

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Present position:
Associate Professor (in physics), October 2018 to now, KTH
Docent (in theoretical nuclear physics), Feb. 2015, KTH

Previous positions:
Assistant Professor, October 2014 to 2018, KTH
Researcher, January 2012 to Sept. 2014, KTH
Postdoc, Aug. 2009-Dec. 2011, KTH
PhD student, Sept. 2004-July 2009, Peking University, Beijing

Other duties:

- Chair of SFS-KF, the nuclear physics section of the Swedish physics society, 2023-2024, Board member, 2021-2024
- Associate Editor Eur Phys J A, 2021-
- Associate Editor, Frontier in physics & Frontier in astronomy, 2022-
- Editor, Symmetry, 2024-
- Reviewer for scientific journals including Nature, Scientific report, Phys. Rev. Lett., Physics letters B, Physical Review C, Nuclear Physics A, Journal of Physics G, Physica Scripta, Canadian Journal of Physics, Int. J. Mod. Phys. E, Journal of Theoretical and Applied Physics, Brazilian Journal of Physics, Chinese physics C, and Acta Physica Sinica; (~30 accepted invitations/year)
- Committee member for PhD thesis defence (X. Xiong, 2015; H. Liu, 2015, Natasa Lalovic, 2017, Martin Albertsson 2021, Jimmy Ljungberg 2024)

Recent Awards:

1. World scientific publisher, Distinguished reviewer, 2022
2. EPJ Top reviewer, 2020, 2022
3. CPC top reviewer award, 2020,2021,2022
4. IOP outstanding reviewer award (two times), 2017, 2018
5. Göran Gustafsson big prize for young researcher, 2016
6. Swedish Research Council (VR) young researcher project, 2012
7. Winner of the poster prize competition, The Rutherford Centennial conference on Nuclear Physics, Manchester, 2011
8. Swedish Research Council (VR) postdoctoral position, 2010
9. Honory professor, Sun Yet-Sen Univ. (2024), Liaoning Normal Univ. (2019).

Publications:
I have published >150 papers in leading journals in the field (>40 in Letter-type, 3 Reviews) and over 20 independent research papers in refereed conference proceedings. Total quotations: 3523 (google scholar, Dec. 10, 2024)

Chong Qi's list of publications

Manuscripts close to be submitted

1. **C. Qi**, Partial conservation of seniority in semi-magic nuclei, 50 pages, invited review for Eur. Phys. J. A
2. **C. Qi,** Neutron-proton pairing in atomic nuclei, 30 pages, invited review for Int. J. Mod. Phys. E.
3. **C. Qi**, R. Wyss, R. Liotta, Alpha rotation and superallowed alpha decays
4. M. Amaro, Nazeef, **C. Qi**, Perturbation theory of Wilczek-Yu's modified Schrödinger Equation
5. R.Y. Cheng, X.L. Zhang, S.M. Wang, **C. Qi**, A novel subspace for Gamow shell model
6. **C. Qi**, D. Lee, Eigenvalue continuation and reduced model for nuclear pairing
7. A. Fredriksson, O. Fallgren, D. Karlsson, **CQ**, Variational calculations with the genetic algorithm
8. T. Tralla, **CQ**, Solution of the pairing Hamiltonian with neural quantum states
9. A. Wallen Kiessling, D. Karlssona, Y. Zhao, **CQ**, DiracSVT: Numerical solution of the Dirac equation with scalar, vector and tensor potentials
10. E. Ahlgren Cederlöf, T. Bäck, J. Nyberg, **C. Qi** et al, "Lifetime measurements of low lying states in odd-mass isotopes 117,119Te"
11. Y. Lam,..,**CQ** et al, "Unlocking the Hidden Information of Periodic Thermonuclear X-Ray Bursts"
12. **CQ**, D. Karlsson, Impact of laser on alpha decay,
13. D. Karlsson, **CQ**, Bootstrapping the nuclear binding energies,
14. J. Hao,..,**CQ** et al, Mountains of Isospin Symmetry Breaking,

Manuscripts under review

1. M.L. Liu, C. Yuan, **C. Qi**, Shell-model investigation on the isomerism in the "south-east" of 208Pb induced by the π0h11/2 hole, submitted to Phys. Lett. B
2. B. Cai, C. Yuan, **C. Qi**, Nucleon clustering in atomic nuclei as manifested from the odd-even staggering in alpha decay---How odd nucleons cluster?, submitted to Nature Physics
3. P. Choudhary, **C. Qi**, The β-decay properties of $N=Z$ nuclei: Role of neutron-proton pairing and the shell model interpretation, submitted to Phys. Rev. C
4. M Storbacka, **C Qi**, Bayesian configuration mixture for atomic masses, submitted to Nature Communication
5. S. Pascu, K. Kaneko, **C. Qi** et al, " Evolution of quadrupole collectivity in Te isotopes", submitted to Phys. Rev. C

Peer-reviewed original articles

1. P. Choudhary, **C. Qi**, Monopole and Seniority truncations in the large-scale configuration interaction shell model approach, to be published to Symmetry
2. W Teng, Y Zhang, C Qi, *Chinese Physics C Vol. 49, No. 1 (2025) 014102*
3. M Storbacka, **C Qi**, Physics Letters B 855, 138822 (2024)
4. Y Zhang, SN Wang, F Pan, **C Qi**, JP Draayer, Physical Review C 110 (2), 024303 (2024)
5. B Das, B Cederwall, **C Qi**, M Górska, PH Regan, Ö Aktas, HM Albers, ...Physical Review Research 6 (2), L022038 (2024)
6. WQ Zhang, XH Yu, Z Liu, AN Andreyev, **C Qi**, JM Dong, XY Fu, H Huang, ...Physical Review C 110 (4), 044301 (2024)

7. B Alayed, RD Page, DT Joss, J Uusitalo, **C Qi**, AD Briscoe, MAM AlAqeel, ...Physical Review C 110 (3), 034303 (2024)
8. K Ortner, C Andreoiu, CM Petrache, **C Qi**, A Astier, TD Bucher, G Colombi, ...Physical Review C 109 (5), 054317 (2024)
9. EA Cederlöf, T Bäck, J Nyberg, **C Qi**, A Ataç, H Badran, T Braunroth, ... The European Physical Journal A 59 (12), 300 (2023)
10. I Ahmed, R Kumar, K Hadynska-Klek, **C Qi**, The European Physical Journal A 59 (12), 306 (2023)
11. MB Amaro, D Karlsson, **C Qi** Physical Review C 108 (5), 054311 (2023)
12. Z Zhang, C Yuan, **C Qi**, B Cai, X Xu, Physics Letters B 838, 137740 (2023)
13. W Zhang, B Cederwall, M Doncel, Ö Aktas, A Ertoprak, **C Qi,** T Grahn, ... Physical Review C 107, 01430 (2023)
14. JJ Liu et al, Physical Review Letters 129 (24), 242502 (2022)
15. Y Zhang, YW He, D Karlsson, **C Qi**, F Pan, JP Draayer, Physics Letters B 834, 137443 (2022)
16. QB Zeng, S Guo, Z Liu, JG Li, HH Li, JG Wang, ZY Zhang, L Ma, YH Qiang, ... Physical Review C 106 (3), 034307 (2022)
17. S Dutt, **C Qi**, I Ahmed, IA Rizvi, R Kumar, Indian Journal of Pure & Applied Physics (IJPAP) 58, 308-313 (2022)
18. X Liu, B Cederwall, **C Qi**, RA Wyss, Ö Aktas, A Ertoprak, W Zhang, ... Physical Review C 106, 034304 (2022)
19. G Le Yang, B Qi, XD Wang, **C Qi**, Physical Review C 106 (2), 024325 (2022)
20. MM Zhang et al., Physical Review C 106, 024305 (2022)
21. X Guan, **C Qi**, Computer Physics Communications 275, 108310 (2022)
22. B Das, B Cederwall, **C Qi,** M Górska, PH Regan, Ö Aktas, HM Albers, ...Physical Review C 105, L031304 (2022)
23. W Zhang, B Cederwall, **C Qi**, A Ertoprak, Ö Aktas, X Liu, K Andgren, ...Physical Review C 104, 064305 (2021)
24. KA Li, **C Qi**, M Lugaro, AY López, AI Karakas, J den Hartogh, BS Gao, ...The Astrophysical Journal Letters 919, L19 (2021)
25. W Zhang, B Cederwall, M Doncel, Ö Aktas, A Ertoprak, R Liotta, **C Qi,** ... Physics Letters B 820, 136527 (2021)
26. X Liu, B Cederwall, **C Qi**, RA Wyss, Ö Aktas, A Ertoprak, W Zhang, ... Physical Review C 104 (2), L021302 (2021)
27. A Soylu, C **Qi,** Nuclear Physics A 1013, 122221 (2021)
28. F Pan, Y He, L Dai, C **Qi**, JP Draayer, Symmetry 13 (8), 1405 (2021)
29. X Liu, **C Qi,** X. Guan, Z. Liu, PairDiagSph: Generalization of the exact pairing diagonalization program for spherical systems, Computer physics communication 265, 07897 (2021)
30. Z. Y. Zhang et al. New α-emitting isotope 214U and abnormal enhancement of α-particle clustering in lightest uranium isotopes, Phys. Rev. Lett. 126 (15), 152502 (2021), arXiv:2101.06023
31. B. Gao et al. New 59Fe stellar decay rate with implications for the 60Fe radioactivity in massive stars, Phys. Rev. Lett. 126, 152701 (2021)
32. **C Qi,** R Liotta, R Wyss, Phys. Lett. B 818, 136373 (2021), arXiv:2003.00859
33. F Pan, C Qi, L Dai, G Sargsyan, KD Launey, JP Draayer, EPL (Europhysics Letters) 132 (3), 32001(2020)
34. A Ertoprak, **C Qi,** B Cederwall, et al Eur. Phys. J. A. 56, 291 (2020)
35. X Liu, **C Qi,** PairDiag: an exact diagonalization program for solving general pairing Hamiltonians, Computer physics communication 259, 107349 (2021)
36. B Cederwall, X Liu, Ö Aktas, A Ertoprak, W Zhang, **C Qi**, E Clément et al, Phys. Rev. Lett. 124, 062501 (2020).
37. B. Cai, G. Chen,J. Xu, C. Yuan, **C. Qi**, Alpha Decay Half-life Estimation and Uncertainty Analysis, Phys. Rev. C 101 (5), 054304 (2020)
38. MD Sun, et al. Phys. Lett. B 800, 135096 (2020)

39. A Ertoprak, B Cederwall, **C Qi**, et al Eur. Phys. J. A. 56, 65 (2020)
40. **C. Qi**, R. Liotta, R. Wyss, Recent developments in radioactive charged-particle emissions and related phenomena, Prog. Part. Nucl. Phys. 105, 214 (2019).
41. YZ Wang, Y Li, **C Qi**, JZ Gu, Pairing Effects on Bubble Nuclei, Chin. Phys. Lett. 36 (3), 032101 (2019).
42. Y.B. Qian, **C. Qi**, Partial seniority conservation and solvability of single- systems, Phys. Rev. C 98 (R), 061303 (2018).
43. A Ertoprak, B Cederwall, **C Qi,** M Doncel, U Jakobsson, BM Nyakó, ...M1 and E2 transition rates from core-excited states in semi-magic 94Ru, European Physical Journal A 54 (9), 145 (2018)
44. B Cederwall, M Doncel, Ö Aktas, A Ertoprak, R Liotta, **C Qi,** T Grahn, ..., Lifetime Measurements of Excited States in and the Variation of Quadrupole Transition Strength with Angular Momentum, Physical Review Letters 121 (2), 022502 (2018)
45. Q Xu, ZG Xiao, SJ Zhu, **C Qi**, H Jia, B Qi, RS Wang, WJ Cheng, Y Zhang, ... Investigation of high spin states in 133Cs, The European Physical Journal A 54 (5), 83 (2018)
46. **C. Qi**, Partial conservation of seniority and its unexpected influence on E2 transitions in g9/2 nuclei, Phys. Lett. B 773, 616 (2017)
47. F Wang, BH Sun, Z Liu, **C Qi**, LH Zhu, C Scholey, SF Ashley, L Bianco, ...Physical Review C 96 (6), 064307 (2017)
48. M Doncel, T Bäck, **C Qi**, DM Cullen, D Hodge, B Cederwall, MJ Taylor, ...Physical Review C 96 (5), 051304 (2017)
49. F.Wang, B. Sun, Z. Liu, **C. Qi** et al, Reinvestigation of the excited states of the proton emitter 151Lu, Phys. Lett. B 770, 83 (2017).
50. M. Doncel,B. Cederwall, **C. Qi** et al., Lifetime measurements of excited states in 162W and 164W and the evolution of collectivity in rare earth nuclei, Physical Review C 95 (4), 044321 (2017)
51. M.D. Sun et al, New short-lived isotope 223Np and the absence of the Z = 92 subshell closure near N = 126, Phys. Lett. B. 770, 83 (2017).
52. **C. Qi**, Differential evolution algorithm for global optimizations in nuclear physics, J. Phys. G 44 (4), 045107 (2017)
53. **C. Qi**, Shell-model configuration-interaction description of quadrupole collectivity in Te isotopes, Phys. Rev. C 94, 034310 (2016)
54. L.Y. Jia, **C. Qi**, Generalized-Seniority Pattern and Thermal Properties in Even Sn Isotopes, Phys. Rev. C 94, 044312 (2016)
55. KA Li, YH Lam, **C Qi**, XD Tang, NT Zhang, β-decay rate of Fe 59 in shell burning environment and its influence on the production of Fe 60 in a massive star, Phys. Rev. C 94 (6), 065807 (2016)
56. RJ Carroll, B Hadinia, **C Qi**, et al., Phys. Rev. C 94 (6), 064311 (2016)
57. **C. Qi**, L.Y. Jia, G.J. Fu, Large-scale shell-model calculations on the spectroscopy of N < 126 Pb isotopes, Phys. Rev. C 94 (1), 014312 (2016).
58. Y.Y. Cheng, **C. Qi**, Y.M. Zhao, A. Arima, Nucleon-pair states of semi-magic 128,126Sn based on realistic effective interaction, Phys. Rev. C 94 (2), 024321 (2016)
59. Y. Huang, **C. Qi** et al, High-spin structures in 129Xe nucleus, to appear in Phys. Rev. C 93 (6), 064315 (2016)
60. **C Qi**, Alpha decay as a probe for the structure of neutron-deficient nuclei, Reviews in Physics 1, 77 (2016)
61. ZY Wu, S.A. Changizi, **C Qi**, Empirical residual neutron-proton interaction in odd-odd nuclei, Phys. Rev. C 93 034334 (2016)
62. S.A. Changizi, **C. Qi**, Odd-even staggering in neutron drip line nuclei, Nucl. Phys. A, 940,210 (2016)
63. **C. Qi** and R. Wyss, "N = Z nuclei: a laboratory for neutron-proton collective mode," Physica Scripta, 91, 013009 (2016).

64. **C. Qi**, T. Chen, Exact solution of the pairing problem for spherical and deformed systems, Phys. Rev. C 92, 051304(R) (2015)
65. ZY Wu, **C Qi**, R Wyss, HL Liu, Physical Review C 92 (2), 024306 (2015)
66. HJ Li, B Cederwall, T Bäck, **C Qi** et al. Physical Review C 92 (1), 014326 (2015)
67. M Doncel, T Bäck, DM Cullen, D Hodge, **C Qi** et al. Physical Review C 91 (6), 061304 (2015)
68. HJ Li, ZG Xiao, SJ Zhu, M Patial, **C Qi**, et al. Physical Review C 91 (5), 054314 (2015)
69. HJ Li, B Cederwall, T Bäck, **C Qi**, et al. Physical Review C 92 (1), 014326 (2015)
70. HJ Li, ZG Xiao, SJ Zhu, **C Qi**, et al.The European Physical Journal A 51 (5), 1-8 (2015)
71. **C. Qi**, Theoretical uncertainty of the Duflo-Zuker mass model, J. Phys. G 42, 045104 (2015).
72. S.A. Changizi, **C. Qi**, Density dependence of the pairing interaction and pairing correlation in unstable nuclei, Physical Review C 91 (2), 024305 (2015)
73. S.A. Changizi, **C. Qi**, R. Wyss. Nuclear odd-even mass staggering and pairing correlation in drip-line nuclei, Nuclear Physics A 940, 210 (2015)
74. DS Delion, RJ Liotta, **C Qi**, R Wyss, Phys. Rev. C 90, 061303 (R) (2014).
75. **C. Qi**, A. N. Andreyev, M. Huyse, R. J. Liotta, P. Van Duppen, R. Wyss, Phys. Lett. B 734 (2014) 203.
76. L.F. Jiao, **C. Qi** et al, Phys. Rev. C. 90, 024306 (2014)
77. F. Ghazi Moradi, B. Cederwall, **C. Qi**. et al. Phys. Rev. C 89, 044310 (2014).
78. FG Moradi, **C Qi**, B Cederwall..., Phys. Rev. C 89 (1), 014301 (2014)
79. C. Yuan, **C. Qi**, F.R. Xu, T. Suzuki, and T. Otsuka, Phys. Rev. C 89, 044327 (2014)
80. H Jiang, Y Lei, **C Qi**, R Liotta, R Wyss, YM Zhao, Phys. Rev. C 89 (1), 014320 (2014)
81. H Jiang, **C Qi**, Y Lei, R Liotta, R Wyss, YM Zhao, Phys. Rev. C 88 (4), 044332 (2013)
82. AN Andreyev, M Huyse, P Van Duppen, **C Qi**, ..., Phys. Rev. Lett. 110, 242502 (2013)
83. T. Bäck, **C. Qi** et al. , Phys. Rev. C 87, 031306(R) (2013).
84. Z. Xu, **C. Qi**, Phys. Lett. B 724, 247 (2013).
85. M.G. Procter,…, **C. Qi** et al., Phys. Rev. C 87, 014308 (2013).

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Research review articles

(also listed above)

1. **C. Qi**, R. Liotta, R. Wyss, Recent developments in radioactive charged-particle emissions and related phenomena, Prog. Part. Nucl. Phys. 105, 214 (2019).
2. **C Qi**, Alpha decay as a probe for the structure of neutron-deficient nuclei, Reviews in Physics 1, 77 (2016)
3. **C. Qi** and R. Wyss, "N = Z nuclei: a laboratory for neutron-proton collective mode," Physica Scripta, 91, 013009 (2016).