

Academic Staff Resume

Name: Dongdong Ni

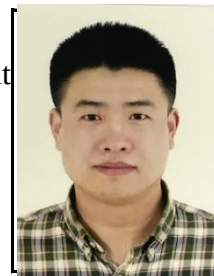
Title: Associate Professor

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Academic Qualification:

Ph.D. in Theoretical Physics, Nanjing University, China, 2012

Bachelor in Particle and Nuclear Physics, Nanjing University, China, 2008

Teaching Area

University Physics I

University Physics II

Modern Physics

Research Area

Interior structure and evolution of Jovian planets

Ground ice stability on Mars

Interior structure of rocky exoplanets

Nuclear decay properties in astrophysical processes

Working Experience

Sep. 2020-present: Associate Professor, State Key Laboratory of Lunar and Planetary Sciences, MU

Jul. 2015-Aug. 2020: Assistant Professor, Space Science Institute, MUST

Jan. 2017-Apr. 2017: Visiting scholar, Department of Earth, Planetary, and Space Sciences, UCLA

Jan. 2013-Jun. 2015: Postdoctoral fellow, School of Electronic Science and Engineering, Nanjing University

Research Projects

National Science Fund for Distinguished Young Scholars, the National Natural Science Foundation of China, 2021-2023 (Principal Investigator)

Research on Key Scientific Objectives of Giant Planetary Systems, the Pre-Research Projects on Civil Aerospace Technologies of China National Space Administration, 2020-2022 (Principal Investigator of subproject)

Nuclear Decay and Planetary Physics, the Science and Technology Development Fund of Macau, 2020-2023 (Principal Investigator)

Internal Structure, Interior Composition, and Zonal Winds of Gas Giant Planets, the Science and Technology Development Fund of Macau, 2019-2022 (Principal Investigator)

Theoretical study of nuclear decay properties for exotic nuclei, the China Postdoctoral Science Foundation, 2013-2015 (Principal Investigator).

Theoretical investigation on effects of nuclear deformation in radioactive decay, the China Postdoctoral Science Foundation, 2014-2015 (Principal Investigator)

Professional Certification and Awards

BOC Research Excellence Award, MUST, 2019

Top Reviewer Awards of the Journal "Chinese Physics C", 2017, 2018, 2019

Outstanding Postdoctoral Researcher of Nanjing University, Nanjing University, China, 2015

Outstanding Report Award for Youth, the 15th National conference on Nuclear Structure, China,

Postdoctoral Researcher Funded by Jiang Province Postdoctoral Foundation, Nanjing, China, 2013

National Scholarship for Postgraduate, China, 2012

9th Excellent Academic Paper of Natural Science Award, Nanjing, China, 2011

Professional Society Membership

Referee for Journal of Physics G: Nuclear and Particle Physics, Chinese Physics C, European Physical Journal A, Physica Scripta, Communications in Theoretical Physics

Member of Nuclear Physics, Chinese Physical Society, China

Member of Jiangsu Physical Society, China

Academic Publication

Journal Articles (selected, total 61 SCI papers with citations above 1300, 44 first-author SCI papers)

39. D. D. Ni. "Understanding Saturn's interior from the Cassini Grand Finale gravity measurements". *Astronomy&Astrophysics* 639, A10 (2020).

38. D. D. Ni. "Signature of helium rain and dilute cores in Jupiter's interior from empirical equations of state". *Earth and Planetary Physics* 4(2), 1-9 (2020).

37. D. D. Ni and Z. Z. Ren. "Effects of nuclear collective vibrations on the alpha-decay fine structure of vibrational nuclei with $A \sim 220$ ". *Physical Review C* 101, 044308 (2020).

36. D. D. Ni. "Understanding Jupiter's deep interior: the effect of a dilute core". *Astronomy&Astrophysics* 632, A76 (2019).

35. Y. P. Shen, B. Guo, T. L. Ma, D. Y. Pang, D. D. Ni, et al. "First experimental constraint of the spectroscopic amplitudes for the alpha-cluster in the ^{11}B ground state". *Physics Letters B* 797, 134820 (2019).

34. D. D. Ni. "Empirical models of Jupiter's interior from *Juno* data: Moment of inertia and tidal Love number k_2 ". *Astronomy&Astrophysics* 613, A32 (2018).

33. D. S. Delion, Z. Z. Ren, A. Dumitrescu, and D. D. Ni. "Coupled channels description of the alpha-decay fine structure". *Journal Physics G: Nuclear and Particle Physics (Topical Review)* 45, 053001 (2018).

32. D. D. Ni and Z. Z. Ren. "Competition between alpha and beta decays for heavy deformed neutron-deficient Pa, U, Np, and Pu isotopes". *Physical Review C* 95, 014323 (2017).

31. D. D. Ni and Z. Z. Ren. "Theoretical research on proton halos in exotic nuclei". *Chinese Physics C* 41, 114104 (2017).

30. D. D. Ni and Z. Z. Ren. "Alpha-decay half-lives of odd-mass nuclei with differences between neutron and proton distributions". *Physical Review C* 93, 054318 (2016).

29. D. D. Ni and Z. Z. Ren. "Beta+/EC decay rates of deformed neutron-deficient nuclei in the deformed QRPA with realistic interactions". *Physics Letters B* 744, 22 (2015).

28. D. D. Ni and Z. Z. Ren. "Systematic research on alpha-decay rates of spherical and deformed nuclei". *Annals of Physics* 358, 108 (2015).
27. D. D. Ni and Z. Z. Ren. "Beta-decay rates of odd-mass neutron-rich isotopes in the deformed quasiparticle random-phase approximation with realistic interactions". *Physical Review C* 92, 034324 (2015).
26. D. D. Ni and Z. Z. Ren. "Effects of differences between neutron and proton density distributions on alpha-decay half-lives". *Physical Review C* 92, 054322 (2015).
25. D. D. Ni and Z. Z. Ren. "Beta-decay rates of neutron-rich Zr and Mo isotopes in the deformed quasiparticle random-phase approximation with realistic interactions". *Physical Review C* 89, 064320 (2014).
24. D. D. Ni and Z. Z. Ren. "Beta-decay rates of r-process waiting-point nuclei in the extended quasiparticle random-phase approximation". *Journal of Physics G: Nuclear and Particle Physics* 41, 025107 (2014).
23. D. D. Ni and Z. Z. Ren. "Beta-decay rates of neutron-rich Kr and Sr isotopes in the deformed QRPA with realistic interactions". *Journal of Physics G: Nuclear and Particle Physics* 41, 125102 (2014).
22. D. D. Ni and Z. Z. Ren. "Coupled-channel representation to describe fine structure in the alpha decay of odd-mass Bk isotopes". *Physical Review C* 88, 014325 (2013).
21. D. D. Ni and Z. Z. Ren. "Theoretical description of fine structure in the alpha decay of heavy odd-odd nuclei". *Physical Review C* 87, 027602 (2013).
20. D. D. Ni, Z. Z. Ren, T. K. Dong, and Y. B. Qian. "Nuclear charge radii of heavy and superheavy nuclei from the experimental alpha-decay energies and half-lives". *Physical Review C* 87, 024310 (2013).
19. D. D. Ni and Z. Z. Ren. "Systematic calculation of fine structure in the alpha decay of heavy odd-mass nuclei". *Physical Review C* 86, 054608 (2012).
18. D. D. Ni and Z. Z. Ren. "Calculations of beta-decay half-lives of neutron-rich nuclei". *Journal of Physics G: Nuclear and Particle Physics* 39, 125105 (2012).
17. D. D. Ni and Z. Z. Ren. "Alpha-decay studies of Rf, Sg, and Hs isotopes within the multi-channel cluster model". *Progress in Theoretical Physics Supplement* 196, 445 (2012).
16. D. D. Ni and Z. Z. Ren. "Binding energies, alpha-decay energies, and alpha-decay half-lives for heavy and superheavy nuclei". *Nuclear Physics A* 893, 13 (2012).
15. D. D. Ni and Z. Z. Ren. "Coupled-channels study of fine structure in the alpha decay of well deformed nuclei". *Physical Review C* 83, 067302 (2011).
14. D. D. Ni and Z. Z. Ren. "Alpha-cluster structure above doubly closed shells in a generalized density-dependent cluster model". *Physical Review C* 83, 014310 (2011).
13. D. D. Ni and Z. Ren. "Coupled-channels study of fine structure in the alpha decay of platinum isotopes". *Physical Review C* 84, 037301 (2011).
12. D. D. Ni and Z. Z. Ren. "Half-lives and cluster preformation factors for various cluster emissions in trans-lead nuclei". *Physical Review C* 82, 024311 (2010).
11. D. D. Ni and Z. Z. Ren. "New approach for alpha-decay calculations of deformed nuclei". *Physical Review C* 81, 064318 (2010).

10. D. D. Ni and Z. Z. Ren. "Systematic calculation of alpha decay within a generalized density-dependent cluster model". *Physical Review C* 81, 024315 (2010).
9. D. D. Ni and Z. Z. Ren. "Calculations of new alpha-decay data within the generalized density-dependent cluster model". *Journal of Physics G: Nuclear and Particle Physics* 37, 105107 (2010).
8. D. D. Ni and Z. Z. Ren. "Alpha-decay calculations of ground and isomeric states within a generalized density-dependent cluster model". *Journal of Physics G: Nuclear and Particle Physics* 37, 035104 (2010).
7. D. D. Ni and Z. Z. Ren. "Alpha-decay calculations of light mass nuclei above doubly magic ^{100}Sn ." *Nuclear Physics A* 834, 370c (2010).
6. D. D. Ni and Z. Z. Ren. "Microscopic calculation of alpha-decay half-lives with a deformed potential". *Physical Review C* 80, 051303(R) (2009).
5. D. D. Ni and Z. Z. Ren. "Exotic alpha decays around the $N=126$ magic shell". *Physical Review C* 80, 014314 (2009).
4. D. D. Ni and Z. Z. Ren. "Alpha-decay calculations of medium mass nuclei within generalized density-dependent cluster model". *Nuclear Physics A* 828, 348 (2009).
3. D. D. Ni and Z. Z. Ren. "Microscopic calculation of alpha-decay half-lives within the cluster model". *Nuclear Physics A* 825, 145 (2009).
2. D. D. Ni, Z. Z. Ren, T. K. Dong, and C. Xu. "Unified formula of half-lives for alpha decay and cluster radioactivity". *Physical Review C* 78, 044310 (2008).
1. D. D. Ni and Z. Z. Ren. "Bedford's law and half-lives of unstable nuclei". *European Physical Journal A* 38, 251 (2008).

Books & Book Chapters:

Subchapter: Nuclear Decay, Chapter: Nuclear Physics, Book: Dictionary of Physics, Natural

Conference Papers (selected):

6. D. D. Ni and Z. Z. Ren. "Beta-decay half-lives including first-forbidden contributions for neutron-rich Zn isotopes in the extended QRPA with neutron-proton pairing". *Journal of Physics: Conference Series* 569, 012044 (2014). 3rd International Workshop on "State of the Art in Nuclear Cluster Physics", 26-30 May 2014, Yokohama, Japan.
5. D. D. Ni and Z. Z. Ren. "Comparison of the coupled-channel calculation with the WKB method for alpha-decay fine structure". *AIP Conference Proceedings* 1533, 109 (2013). 8TH CHINA-JAPAN JOINT NUCLEAR PHYSICS SYMPOSIUM (CJJNPS2012), 15-19 October 2012, Beijing, China.
4. D. D. Ni and Z. Z. Ren. "Systematics of fine structure in the alpha decay of deformed even-even nuclei". *Journal of Physics: Conference Series* 413, 012015 (2013). International Summer School for Advanced Studies 'Dynamics of open nuclear systems' (PREDEAL12), 9-20 July 2012, Predeal, Romania.

3. D. D. Ni and Z. Z. Ren. "Coupled-channels study of fine structure in the alpha decay of $^{233,235}\text{U}$ ". Journal of Physics: Conference Series 420, 012006 (2013). 11th International Conference on Nucleus-Nucleus Collisions (NN2012), 27 May to 1 June 2012, San Antonio, Texas, USA.

2. D. D. Ni and Z. Z. Ren. "Systematic calculation of fine structure in the alpha decay of deformed nuclei". Journal of Physics: Conference Series 381, 012055 (2012). Rutherford Centennial Conference on Nuclear Physics, 8-12 Aug 2011, Manchester, England, United Kingdom.

1. D. D. Ni and Z. Z. Ren. "Alpha-decay half-lives of superheavy nuclei around the $N=152$ shell". International workshop "Hadron-Nuclear Physics 09" held at Osaka, November 16-19, 2009.

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