

VITA

**Calvin William Johnson**

ORCID ID: 0000-0003-1059-7384

Citizenship: United States  
Home Address: 4368 Charger Blvd, San Diego CA 92117 USA  
work: (619) 594-1284 mobile: (619) 865-7577  
E-mail: cjohnson@sdsu.edu

**Education:**

University of California, Davis, 1981-85  
B.S. in Physics, Mathematics with highest honors  
U.C. Regents Scholar 1981-85; Arts and Science College Medal, 1985  
University of Washington, 1985-1989  
Karrer prize 1986; Henderson Thesis Prize 1990  
Ph.D Thesis: A 4h $\omega$  Shell Model Calculation of  $^{16}\text{O}$  and the Nuclear  
Response of Molybdenum to Solar and Supernova Neutrinos  
Thesis Advisor: Wick Haxton

**Employment:**

Professor, Department of Physics, *San Diego State University*, Sept 2008 to present  
Graduate Advisor, Nov 2024 to present  
Associate Professor, Department of Physics, *San Diego State University*, May 2004 to Aug 2008  
Assistant Professor, Department of Physics, *San Diego State University* Jan 2002 to May 2004  
Associate Professor, Department of Physics, *Louisiana State Univ.*, Aug 2001 to Aug 2002  
(on leave January 2002 to August 2002)  
Assistant Professor, Department of Physics, *Louisiana State Univ.*, Sept 1995 to July 2001  
Postdoctoral Research Associate, Dept of Physics, *Univ. Washington*, Nov 1994 to Aug 1995  
Postdoctoral Fellow, *Los Alamos National Laboratory*, Nov 1992 to Oct 1994  
Division Research Fellow, *California Institute of Technology*, Dec 1989 to Nov 1992  
Research Assistant, *Lawrence Livermore National Lab*, June-Sept 1985 and June-Sept 1986

**Other appointments:**

Associate Editor, Physical Review C, March 2018 to present  
Research Scientist Step III (at 0% effort), UC San Diego, February 2013 to June 30, 2018  
Research Scientist Step V (at 0% effort), UC San Diego, Effective July 1, 2018, to present

**Research Interests:**

Computational many-body theory: nuclear shell model, random phase approximation,  
spectral moment method, projected Hartree-Fock and beyond-mean-field methods  
Weak interactions in nuclear physics, astrophysics, dark matter, and neutrino physics  
Quantum computing applied to nuclear physics problems

**Awards and honors:**

1996 DOE Defense Programs Young Scientist Award  
2003, 2005, 2016, 2021 SDSU Outstanding Faculty Award (Physics)  
Faculty Fellow Weber Honors College 2016-2023  
Outstanding Referee Physical Review Journals 2018  
Outstanding Reviewer IOP Publishing (J. Phys. G) 2019  
Thomas B. Day Award for Outstanding Physics Faculty 2022  
SDSU Alumni Distinguished Faculty Award, Sciences, 2024  
Fellow of the American Physical Society – Division of Nuclear Physics, 2024

## Grants and Funding

Calvin W. Johnson

Note: grants at SDSU since 2002 total more than \$4M in external, single-investigator awards; grants at LSU 1995-2002 totaled \$410K in external, single-investigator awards.

### Current

June 2026-May 2028: Department of Energy Office of Science, DE-FG02-03ER41272, "Applying the shell model to nuclear shapes and intruders," (\$140,000/ 2 years)

### Past

June 2023-May 2026: Department of Energy Office of Science, DE-FG02-03ER41272, "Extending the application of the interacting nuclear shell model," (\$330,000/ 3 years)

Sept 2022-Aug 2025, extended to Aug 2026: Department of Energy NNSA grant DE-NA0004075: "Scattering and reactions in a shell-model framework," (\$420,000/3 years). PI: K. Nolle; Co-PI: C.W. Johnson

Sept 2020-Aug 2023, extended to Dec 2025: University of Wisconsin-Madison subcontract, "Quantum-enhanced detection of dark matter and neutrinos" (\$215,000/3 years)

Jan 2022-Dec 2024: Lawrence Livermore ACT-UP award, "New predictive capability for reaction and decay properties of fission fragments" (\$363,000/3 years)

June 2021-May 2023: Department of Energy Office of Science, "HADRONs: Helping Amplify Diversity and Research Opportunities in Nuclear Science" (\$200,000/2 years). PI: R. Navarro Perez; Co-PIs: C.W. Johnson and F. Weber.

June 2020-May 2023: Department of Energy Office of Science, DE-FG02-03ER41272 "Nuclear structure, uncertainties, and transitions: computational studies " (\$315,000/ 3 years)

Jan 2022-Dec 2022: General Atomics grant: "Quantum emulation of fusion of light elements," \$39,000.

Jan 2021-Dec 2021: General Atomics grant: "Quantum emulation of fusion of light elements," \$49,768 (co-PI: Nolle)

May 2016-April 2021: Department of Energy Topical Collaboration, DE-SC0015376, "Nuclear theory for double-beta decay and fundamental symmetries" (\$110,000/5 years)

Sept 2018-Aug 2020: University of Wisconsin-Madison subcontract, "Quantum-enhanced detection of dark matter and neutrinos" (\$100,000/2 years)

June 2018-May 2020: Department of Energy Office of Science, DE-FG02-03ER41272 "Nuclear forces, structures, and transitions: computational studies " (\$198,000/ 2 years)

Sept 2016-Dec 2018: DOE Stewardship Science Academic Program, DE-NA0003343, "Ab initio calculations of neutron-capture reactions on light nuclei," (\$150,000/2 years)

June 2015-May 2018: Department of Energy Office of Science, DE-FG02-03ER41272, "Nuclear structure and transitions: computational studies and resources" (\$285,000/ 3 years)

June 2012-May 2015: Department of Energy Office of Science, DE-FG02-03ER41272, "Mean-field and many-body forces in nuclear structure calculations" (\$270,000/three years).

June 2009-May 2012: Department of Energy Office of Science, DE-FG02-03ER41272, "Computational nuclear structure and fundamental symmetries," (\$220,000/three years).

December 2010-November 2011, SciDAC subcontract, "Universal Energy Density Functional" \$43,000.

August 2011-December 2011, Livermore subcontract "Development of Large-dimension shell-model code," \$20,057.

April 2010-Oct 2010, Lawrence Livermore subcontract: "Development of Large-dimension shell model code," \$44,000

June 2008 – May 2009, Lawrence Livermore subcontract: "Development of Large-dimension shell model code," \$44,000

January 2007 - November 2010, SciDAC subcontract, "Universal Energy Density Functional" (\$43,000/year).

#### Grants and Funding, cont'd

Calvin W. Johnson

September 2006 - May 2009, Department of Energy Office of Science, DE-FG02-03ER41272, "Mean-field and moment methods applied to nuclear structure and reactions"(\$165,000/three years).

October 2005 - September 2008, DOE/NNSA/Lawrence Livermore National Laboratory. "Frontier computations in the structure of atomic nuclei." \$46,000/yr or \$138,000 for 3 years.

September 2003 - August 2006, Department of Energy Office of Science, DE-FG02-03ER41272, "Computational approximations to the nuclear shell model"(\$140,000/three years).

July 1999 - June 2002. Department of Energy Grant, "Competing degrees of freedom in nuclear structure theory," (\$138,000 /three years)

May 2003-April 2006, Department of Energy Academic Alliances Program, DE-FG52-03NA00082, "Nuclear level densities for modeling nuclear reactions: an efficient approach using statistical spectroscopy," (\$347,000/ three years).

July 1999-June 2002, Board of Regents Research Competitiveness Grant, "Microscopic, statistical approaches to nuclear astrophysics," (\$142,000 / three years.)

January 1999. Louisiana Board of Regents Travel Grant for Emerging Faculty, \$1,000.

Jan-Dec 1997. Oak Ridge Associated Universities Junior Faculty Enhancement Award, "Exotic nuclei and nuclear astrophysics—a computational study". (\$10,000).

July 1996 - June 1999. Department of Energy Grant DE-FG02-96ER40985, "Weak interactions in nuclear physics and astrophysics using many-body theory" (\$130,000 /three years.)

#### Supercomputing time

ASCR Leadership Computing Challenge grant "Nuclear structure for tests of fundamental symmetries and astroparticle physics," 30 million processor hours, 2016-2017.

ERCAP grant, "Large scale simulations of nuclear structure for symmetries and weak transitions", 6 million units AY2018, 5 million units AY2019, 4 million units AY2020, 4 million units AY2021; (change of units) 2000 units AY2022, 2000 units AY 2023, 4500 units AY 2024 2000 units AY 2025, 2000 units AY 2026

XSEDE grant, "Large scale simulations of stellar weak nuclear force transitions," 1.3 million processor hours, 2018-2020.

**Teaching at summer schools and elsewhere**

June 2002 Lecturer at 14th Annual Summer Nuclear Institute at TRIUMF  
July 2012 Lecturer at Nuclear TALENT School in Computational Many-Body Theory, ECT\*, Trento, Italy  
2019 Lectures on quantum mechanics (30 hours) and quantum computing (30 hours) at Naval Information Warfare Center, San Diego

**Service to national/international physics community**

Member APS/DNP program committee 1999-2000  
Member NSF Review Panel 2002  
Member NSF Review Panel 2011  
Member advisory committee, "Computational and Group-Theoretical Methods in Nuclear Physics," Feb 18-21, 2003, Playa del Carmen, Mexico.  
Member organizing committee, "Blueprints for the Nucleus," May 17-21, 2004, Feza Gursey Institute, Istanbul, Turkey; editor for conference proceedings in Intl. J. Mod. Phys. E. (Nuclear) February, 2005  
Organizer, Institute for Nuclear Theory Program 09-1: Effective Field Theories for the Many-body Problem, Spring 2009  
Judge, Phi Beta Kappa Science Book Award, 2008-10  
Member, APS DNP Nominating Committee, 2009-10  
Member, APS Committee on Membership 2009-11  
Chair, APS Committee on Membership, 2011  
Member, organizing committee, 2012 Fall DNP Meeting.  
Member, organizing committee, Peking University-CUSTIPEN Workshop on "Advances in computations of nuclear structure and nuclear forces" August 2015  
Member, APS DNP Ad Hoc Mentoring Award Committee, 2015-2016  
Convener, Nuclear Theory Working Group, 2nd US-China-FRIB Meeting on the Physics of Nuclei and Hadrons, Beijing, China, October 2017  
Lead organizer, FRIB-Theory Alliance workshop on "From bound states to the continuum: Connecting bound state calculations with scattering and reaction theory," MSU, June 11-22, 2018  
Member, organizing committee, "Looking for v-physics on Earth and in the Cosmos," in honor of Wick Haxton's 70<sup>th</sup> birthday, January 7-8, 2020, Berkeley CA.  
Member, FRIB-Theory Alliance executive board 2021-2024  
Chair, FRIB-Theory Alliance Theory Fellow Selection Committee, 2023  
Member, International Advisory Committee, Workshop "Mean-field and Cluster Dynamics in Nuclear Systems (MCD2022)" and symposium "Developments of Physics of Unstable Nuclei (YKIS2022)", Kyoto University, May 2022  
Co-Organizer, Working Group on Computing, Nuclear Structure, Reactions, and Astrophysics Town Hall Meeting for Nuclear Science Long Range Plan, November 2022  
Member, FRIB Theory Alliance Executive Board, 2021-2023  
Member, DOE Review Panel Texas A&M Cyclotron Lab, January 2023  
Member, NSF Review Panel 2023  
Member, DOE Review Panel 2024  
Director line, FRIB Theory Alliance Executive Board, 2024-2026  
Member, Local Organizing Committee, Symposium on "Celebrating 75 years of the nuclear shell model and Maria Goeppert-Mayer," Argonne National Lab, July 19-21, 2024  
Co-organizer IQuS workshop, "Entanglement in Many-body Systems: From Nuclei to Quantum Computers and Back," Seattle, Sept 9-20, 2024

Service to national/international community, cont'd

Calvin W. Johnson

Member, International Advisory Committee, 14<sup>th</sup> International Spring Seminar on Nuclear Physics, Ischia, Italy, May 19-23, 2025  
Co-organizer Low Energy Community Meeting, Texas A&M University, August 13-15 2025  
CalBridge Mentor 2024-present  
Member, Scientific Advisory Committee for the International Conference on Nuclear Theory in the Supercomputing Era, Roorkee, India, March 16-20, 2026  
Lead organizer, Workshop on “Many-body correlations, phase transitions, and clustering: how to identify and quantify them”, CEA Saclay, University Saclay, France, Sept 7-11 2026.

**Service to SDSU:**

Chair, College of Science Research Committee, Fall 2005.  
Graduate Advisor, SDSU Department of Physics: September 2005 – August 2008  
Associate Chair of Physics, SDSU: April 2008 – August 2008  
Mentor SDSU Summer Undergraduate Research Program (Kevin O'Mara) 2015  
Mentor SDSU Summer Undergraduate Research Program (Miguel Godinez) 2016  
Mentor SDSU Summer Undergraduate Research Program (Joseph Millar) 2017  
College of Sciences Tenure & Promotion Committee, 2015-2017  
Chair, Department of Physics Faculty Search (Theory), 2017-2018  
Chair, Department of Physics Retention, Tenure, and Promotion Committee, 2018-2023  
Chair, Computational Science Faculty Search, 2022-2023  
Graduate Advisor, SDSU Physics and Medical Physics, 2024 – present.

Students and Postdocs

**Postdoctoral researchers supervised**

\* Dr. Jameel-Un Nabi, October 1999-August 2002 (at Louisiana State University). PhD: University of Heidelberg. *Current position:* Professor, Faculty of Engineering Sciences, Ghulam Ishaq Khan Institute, Pakistan.  
\* Dr. Edgar Teran, July 2003 – August 2006. PhD: Vanderbilt University. *Current position:* Associate Scientist, PROS (prosrm.com)  
\* Dr. Plamen Krastev, July 2008 – 2011. PhD: University of Idaho. *Current position:* Computational Scientist, Research Computing Group, Harvard University.  
\* Dr. Changfeng Jiao, August 2017 – August 2019. PhD. Peking University. *Current position:* Faculty, Sun Yat-sen University, Guanzhou, China.  
\* Dr. Minh-Loc Bui, September 2023 – present. (Jointly supervised with Kenneth Nollett.)

**Ph.D students supervised**

\* Ionel Stetcu, Louisiana State University. Dissertation: “Toward a Global Microscopic Theory for Nuclear Structure: Mean Field plus Random Phase Approximation vs. Shell Model,” August 2003. *Current position:* Staff scientist, Los Alamos National Laboratory.  
\* Hai Ah Nam, San Diego State University (Joint Doctoral Program in Computational Science), “*Ab initio* nuclear shell model calculations of some light nuclei with a three-nucleon force,” April, 2010. *Current position:* Project Director, Lawrence Berkeley National Laboratory.  
\* Micah Schuster, San Diego State University (Joint Doctoral Program in Computational Science), “Systematic investigation of operators in nuclear systems,” June 2015. *Current position:* Assistant professor, Department of Computer Science, Wentworth Institute of Technology.  
\* Raul Herrera, UC San Diego (Physics, joint supervision with George Fuller), June 2020.  
\* Jordan Fox, San Diego State University (Computational Science), “Data-driven methods for low-energy nuclear theory,” August 2022. *Current position:* Postdoc, NYU.

### **Ph.D students supervised, continued**

Calvin W. Johnson

- \* Oliver Gorton, San Diego State University (Computational Science), “Shell-model methods, statistical nuclear reactions, and beta-delayed neutron emission,” Jan 2024. *Current position:* Postoc, Lawrence Livermore National Lab
- \* Ryan Zbikowski, San Diego State University (Computational Science), “Computational approaches to the nuclear many-body problem,” April 2024. *Current position:* Staff, Qualcomm.
- \* Hayden Frye (Computational Science), *in progress*

### **MS students supervised**

- \* Dennis Monday. “Analytic approximations in calculations of solar neutrino oscillators” (November 2004). *Current position:* Engineer, Northrop Grumman Integrated Systems.
- \* Micah Schuster, “Benchmarking approximations for the electronic structure of atoms,” March 2011. *Current position:* Associate Professor, Wentworth Institute of Technology
- \* Daniel Mickelsen, “Investigation of nucleon-nucleon scattering,” June 2015. *Current position:* Graduate studies, UC Irvine.
- \* Oliver Gorton, “Efficient modeling of nuclei through coupling of proton and neutron wave functions,” April 2018. *Current position:* Postdoctoral scholar, Lawrence Livermore Laboratory
- \* Kris McBrian, “Variational quantum circuit simulation on an FPGA”, August 2022. *Current position:* Leidos.
- \* Austin Keller, “Numerical techniques for computing scattering phase shifts in the oscillator basis,” November 2022.
- \* Amanda Bowman (Computational Science), “Nuclear spectra from quantum Lanczos algorithm with real-time evolution and multiple reference states,” June 2023. *Current position:* Scientific Software Engineer at CIRES/NOAA.
- \* Dustin Wheeler, “Numerical Solutions of the S-Matrix for Multichannel Systems Using Integral Relations,” December 2023.
- \* Heng Yu, “Multi-channel scattering for non-zero angular momentum,” April 2024.
- \* Aleksandra Curcic, “Analyzing Local-Mesh Finite-Volume Solvers for Maxwell Equations at Material Boundaries,” July 2025 (co-mentored with Dr. Hans Johansen, LBL).
- \* Raul Bernal-Gonzalez (Computational Science), *in progress*.
- \* Jason Scruggs, *in progress*.
- \* Isaiah Tallod, *in progress*.

### **Senior theses supervised**

- \* W. Tyler Watkins. Thesis: “Square well binding energy in relativistic quantum mechanics” (August, 2003).
- \* Frank Vachlin. Thesis: “Computational analysis of solitons and quasi-solitons through stability analysis” (May 2004).
- \* Finn O’Shea. “The parity non-conserving potential” (December 2004)
- \* Van Nguyen (AWIS scholar, McNair scholar, MARC scholar, College of Sciences Valedictorian, Outstanding Graduating Physics Major). “Time-integrated supernova neutrino flux from a nearby cluster,” (May 2005).
- \* Rick Navarro. “Time-dependent nucleosynthesis reaction networks,” (May 2005).
- \* Derek Padilla, “Comparison of secular models for partial level densities” (May 2007).
- \* Grizelda Kersteen “Numerical convergence of a many-body system” (May 2011).
- \* Kevin O’Mara (Outstanding Graduating Physics Major), “Improved angular momentum projection for Hartree-Fock,” (May 2016).
- \* Dillon Adams, “*Ab initio* rotational bands in heavy nuclei” (May 2017)
- \* Miguel Godinez, “*Ab initio* rotational bands in medium nuclei” (May 2017)
- \* Joseph Millar, “Projected Hartree Fock with an external field,” (May 2018)
- \* Ken Luu, “Novel energy extrapolation,” (May 2019)

**Senior theses supervised, continued**Calvin W. Johnson

- \* Hayden Frye (Outstanding Graduating Physics Major), “Generator coordinate methods” (May 2021)
- \* Vladimir Bautista, “Sensitivity analysis of shell-model interactions,” (May 2023)
- \* Richard Ryan, in progress.
- \* Gregorio Algreto Cortes, “M3 and E4 couplings in the shell model”
- \* Nicolas Smith, in progress
- \* Rose Easton, in progress
- \* Emiliano Bustos (UCI physics student), in progress

Professional References

Prof. Wick Haxton  
Lawrence Berkeley National Lab  
1 Cyclotron Road Mail Stop 70R0319  
Berkeley, CA 94720- 0319  
Phone: (510) 664-4321, (510)486-6539  
E-MAIL: haxton @ berkeley.edu, wchaxton @ lbl.gov

Prof. A. Baha Balantekin  
Department of Physics  
University of Wisconsin-Madison  
1150 University Avenue, Madison, WI 53706-1390  
Phone: (608)-263-7931  
E-MAIL: [baha@nucth.phys.wisc.edu](mailto:baha@nucth.phys.wisc.edu)

Dr. Jutta Escher  
Nuclear Data and Modeling  
Lawrence Livermore National Laboratory  
P.O. Box 808  
L-414  
Livermore, CA 94551  
Phone: (925) 423-2991  
E-MAIL: escher1 @ llnl.gov

Prof. Kristina Launey  
Department of Physics & Astronomy  
Louisiana State University  
211B Nicholson Hall, Tower Dr.  
Baton Rouge, LA 70803-4001  
Phone: (225) 578-0351  
E-MAIL: kristina @ phys.lsu. edu

1. "Geochemical Integrations of the Neutrino Flux from Stellar Collapses," W. C. Haxton and **C. W. Johnson**, *Nature* **333**, (1988) 325.
2. "Weak Interaction Rates in  $^{16}\text{O}$ ," W. C. Haxton and **C. W. Johnson**, *Phys. Rev. Lett.* **65** (1990) 1325.
3. "The Fate of  $^7\text{Be}$  in the Sun," **C. W. Johnson**, E. Kolbe, S. E. Koonin, and K. Langanke, *Ap. J.* **392** (1992) 320.
4. "Optical Model Description of Parity-Nonconserving Neutron Resonances," S. E. Koonin, **C. W. Johnson** and P. Vogel, *Phys. Rev. Lett.* **69** (1992) 1163.
5. "Monte Carlo Methods for the Nuclear Shell Model," **C. W. Johnson**, S. E. Koonin, G. H. Lang, and W. E. Ormand, *Phys. Rev. Lett.* **69** (1992) 3157.
6. "Monte Carlo Evaluation of Path Integrals for the Nuclear Shell Model," G. H. Lang, **C. W. Johnson**, S. E. Koonin, and W. E. Ormand, *Phys. Rev. C* **48** (1993) 1518.
7. "Demonstration of the auxiliary-field Monte Carlo approach for sd-shell nuclei," W. E. Ormand, D. J. Dean, **C. W. Johnson**, G. H. Lang, and S. E. Koonin, *Phys. Rev. C* **49** (1994) 1422.
8. "Hermitian boson mapping and finite truncation," **C. W. Johnson** and J. N. Ginocchio, *Phys. Rev. C* **50** (1994) R571.
9. "Unified theory of fermion pair to boson mapping in full and truncated spaces," J. N. Ginocchio and **C. W. Johnson**, *Phys. Rev. C* **51** (1995) 1861.
10. "Orderly spectra from random interactions," **C. W. Johnson**, G. F. Bertsch, and D. J. Dean, *Phys. Rev. Lett.* **80** (1998) 2749.
11. "Solar fusion rates," E. Adelberger, *et al.*; *Rev. Mod. Phys.* **70** (1998) 1265.
12. "A Lanczos algorithm and energy-weighted sum rules for linear response," **C. W. Johnson**, G. F. Bertsch, and W. Hazelton, *Comp. Phys. Comm.* **120** (1999) 155.
13. "Generalized seniority from random interactions," **C. W. Johnson**, G. F. Bertsch, D. J. Dean, and I. Talmi, *Phys. Rev. C* **61**, 014311 (2000).
14. "Sum rules regarding the sign problem in Monte Carlo shell model calculations," **C. W. Johnson** and D. J. Dean, *Phys. Rev. C* **61**, 044327 (2000).
15. "Spin structure of many-body systems with two-body random interactions," L. Kaplan, T. Papenbrock, and **C. W. Johnson**, *Phys. Rev. C* **63**, 014307 (2000).
16. "SU(3) symmetry breaking in lower *pf*-shell nuclei," V. Gueorguiev, J. P. Draayer, and C. W. Johnson, *Phys. Rev. C* **63** 014318 (2000).
17. "A mixed-mode shell-model theory for nuclear structure studies," V. Gueorguiev, W. E. Ormand, **C. W. Johnson**, and J. P. Draayer, *Phys. Rev. C* **65** 024314 (2002).
18. "The random phase approximation vs. exact shell-model correlation energies," I. Stetcu and **C. W. Johnson**, *Phys. Rev. C* **66** 034301 (2002).
19. "SU(3) vs. projected Hartree-Fock state," **C. W. Johnson**, I. Stetcu, and J. P. Draayer, *Phys. Rev. C* **66**, 034312 (2002).
20. "Scalar ground-state observables in the random phase approximations," **C. W. Johnson** and I. Stetcu, *Phys. Rev. C* **66**, 064304 (2002).
21. "Tests of the random phase approximation for transitions strengths," I. Stetcu and **C. W. Johnson**, *Phys. Rev. C* **67**, 043315 (2003).
22. "Level densities in  $^{56,57}\text{Fe}$  and  $^{96,97}\text{Mo}$ ," A. Schiller, E. Tavukcu, L.A. Bernstein, P.E. Garrett, M. Guttormsen, M. Hjorth-Jensen, **C.W. Johnson**, G.E. Mitchell, J. Rekstad, S. Siem, A. Voinov, and W. Younes. *Phys. Rev. C* **68**, 054326 (2003).
23. "Gamow-Teller transitions and deformation in the proton-neutron random phase approximation," I. Stetcu and **C. W. Johnson**, *Phys. Rev. C* **69**, 024311 (2004).
24. "Behavior of shell-model configuration moments," E. Teran and **C. W. Johnson**, *Phys. Rev. C* **73**, 024303 (2006).

25. "Simple models for shell-model configuration densities," Edgar Terán and **C. W. Johnson** Phys. Rev. C **74**, 067302 (2006).
26. "Time-integrated supernova neutrino flux from a nearby cluster," **V. T. Nguyen** and **C. W. Johnson**, Astroparticle Physics **27**, 233-237 (2007).
27. "Benchmark calculation of inclusive electromagnetic response in the four-body nuclear system," I. Stetcu, S. Quaglioni S. Bacca,, B. R. Barrett, **C. W. Johnson**, *et al.* Nucl. Phys. A **785**, 307-321 (2007).
28. "New puzzle for many-body systems with random interactions," **C. W. Johnson** and **H. A. Nam**, Phys. Rev. C **75**, 047305 (2007).
29. "Model space truncation in shell-model fits", G. F Bertsch and **C. W. Johnson**, Phys. Rev. C **80**, 027302 (2009).
30. "Collapse of the random phase approximation: examples and counter-examples from the shell model," **C. W. Johnson** and I. Stetcu, Phys. Rev C **80**, 024320 (2009).
31. "Sensitivity analysis of random two-body interactions," **C.W. Johnson** and P.G. Krastev, Phys. Rev. C **81**, 054303 (2010).
32. "Many-body fits of phase-equivalent effective interactions," **C.W. Johnson**, Phys. Rev. C **82**, 031303(R) (2010).
33. "Alpha-like quartet condensation and isovector pairing correlations in N=Z nuclei," N. Sandulescu, D. Negrea, J. Dukelsky, and **C. W. Johnson**, Phys Rev C **85**, 061303(R) (2012).
34. "Four-nucleon alpha-type correlations and proton-neutron pairing away of N=Z line," N. Sandulescu, D. Negrea, and **C. W. Johnson**, Phys. Rev. C **86**, 041302(R) (2012).
35. "Comparison of Gamow-Teller strengths in the random-phase approximation," J.-U. Nabi and **C. W. Johnson**, J. Phys. G **40**, 065202 (2013).
36. "Computational Quantum Nuclear Many-body Problem: the UNEDF Project", S. Bogner *et al*, Comp. Phys. Comm. **184**, 2235-2250 (2013).
37. "Factorization in large-scale many-body calculations," **C. W. Johnson**, W. E. Ormand, and P. G. Krastev, Comp. Phys. Comm. **184**, 2761-2774 (2013).
38. "Operator evolution for *ab initio* theory of light nuclei" **M. D. Schuster**, S. Quaglioni, **C. W. Johnson**, E. D. Jurgenson, and P. Navratil, Phys. Rev. C **90**, 011301(R) (2014).
39. " Testing the spin-cutoff parameterization with shell-model calculations," W. M. Spinella and **C. W. Johnson**, Phys. Rev. C **90**, 014315 (2014).
40. "Isoscalar and isovector pairing in a formalism of quartets," M. Sambataro, N. Sandulescu, and **C. W. Johnson**, Phys. Lett **B 740**, 137 (2015).
41. "Spin-orbit decomposition of *ab initio* wavefunctions," **C. W. Johnson**, Phys. Rev. C **91**, 034313 (2015).
42. "Operator evolution for *ab initio* electric dipole transitions of  $^4\text{He}$ ," **M. D. Schuster**, S. Quaglioni, **C. W. Johnson**, E. D. Jurgenson, and P. Navratil, Phys. Rev. C **92**, 014320 (2015).
43. "Systematics of strength function sum rules," **C. W. Johnson**, Phys. Lett. B **750**, 72-75 (2015).
44. "Quasi-dynamical symmetries in the backbending of  $^{48,49,50}\text{Cr}$ ," **R. A. Herrera** and **C. W. Johnson**, Phys. Rev. C **95**, 024303 (2017)      "*Editor's Suggestion*"
45. "Tracing the evolution of nuclear forces under the similarity renormalization group," **C. W. Johnson**, Phys. Lett. B. **774**, 465-469 (2017).
46. "Projection of angular momentum by linear algebra," **C. W. Johnson** and **K. D. O'Mara**, Phys. Rev C **96**, 064304 (2017)
47. "Transition sum rules in the shell model," Yi Lu and **C. W. Johnson**, Phys. Rev. C **97**, 034330 (2018)
48. "Convergence and efficiency of angular momentum projection for many-body systems," **C.W. Johnson** and C.-F. Jiao, J. Phys. G **46**, 015101-015115 (2019).

49. “The union of rotational and vibrational modes in generator-coordinate-type calculations, with application to neutrinoless double-beta decay,” C.-F. Jiao and **C.W. Johnson**, Phys. Rev. C **100**, 031303(R) (2019).
50. “Entanglement and collective flavor oscillations in a dense neutrino gas,” M. J. Cervia, A. V. Patwardhan, A. B. Balantekin, S. N. Coppersmith, and **C. W. Johnson**, Phys Rev D **100**, 083001 (2019)
51. “No-core shell model calculations of the photonuclear cross section of  $^{10}\text{B}$ ,” M. K. G. Kruse, W. E. Ormand, and **C. W. Johnson**, Eur. Phys. J. A **55**, 225 (2019).
52. “Unmixing symmetries,” **C. W. Johnson**, Phys. Rev. Lett. **124**, 172502 (2020).
53. “Uncertainty quantification of an empirical shell-model interaction using principal component analysis,” **J. M. R. Fox**, **C.W. Johnson**, and R. Navarro Perez, Phys Rev C **101**, 054308 (2020).
54. From deformed Hartree-Fock to the nucleon-pair approximation,” G.-J. Fu and **C. W. Johnson**, Phys Lett B **809**, 135705 (2020).
55. “Exact transition sum rules for approximate nuclear ground states,” **C. W. Johnson**, **K. A. Luu**, and Y. Lu, J. Phys. G. **47**, 105107 (2020).
56. “From bound states to the continuum,” **C. W. Johnson**, K. D. Launey, *et al*, J. Phys. G: Nucl. Part. Phys. **47** 123001 (2020) (report from FRIB Theory alliance workshop) arXiv:1912.00451
57. “Rotational bands beyond the Elliott model,” **R. Zbikowski**, **C. W. Johnson**, M. A. Caprio, P. Fasano, and A. McCoy, J. Phys. G **48**, 075102 (2021).
58. “Nucleon-pair coupling scheme in Elliott’s SU(3) model,” G.J. Fu, **C. W. Johnson**, P. van Isacker, and Z.Z. Ren, Phys. Rev. C, **103**, L021302 (2021)
59. “Tensor force role in  $\beta$ -decays analyzed within the Gogny-interaction shell model,” B. Dai, B.S. Hu, Y.Z. Ma, J. G. Li, S. M. Wang, **C. W. Johnson**, and F. R. Xu, Phys. Rev. C **103**, 064327 (2021).
60. “Lipkin model on a quantum computer,” M. J. Cervia, A. B. Balantekin, S. N. Coppersmith, **C. W. Johnson**, P.J. Love, C. Poole, K. Robbins, M. Saffman, Phys. Rev. C **104**, 024305 (2021)
61. “The nucleon-pair approximation for nuclei from spherical to deformed regions,” G.F. Fu and **C. W. Johnson**, Phys. Rev. C **104** 024312 (2021) *“Editor’s Suggestion”*
62. “Benchmarking angular-momentum projected Hartree-Fock as an approximation,” **S. M. Lauber**, **H. C. Frye**, and **C. W. Johnson**, J. Phys. G. **48**, 095107 (2021).
63. “Modified Axel-Brink statement for astrophysical Gamow-Teller transitions,” **R. A. Herrera**, **C. W. Johnson**, and G. M Fuller, Phys. Rev. C **105**, 015801 (2022).
64. “How effective is the Brink-Axel hypothesis for astrophysical weak rates?” N. Ali, J. Nabi, and **C. W. Johnson**, J. Phys. G. **49**, 065201 (2022).
65. “Nuclear states projected from a pair condensate,” Y. Lu, Y. Li, **C. W. Johnson**, and J.-J. Shen, Phys. Rev. C **105**, 034317 (2022).
66. “Collective neutrino oscillations with tensor networks using a time-dependent variational principle,” M. J. Cervia, P. Siwach, A. V. Patwardhan, A. B. Balantekin, S. N. Coppersmith, **C. W. Johnson**, Phys. Rev. D **105**, 123025 (2022)
67. “Nucleon-pair truncation of the shell model for medium-heavy nuclei,” Y. X. Yu, Y. Lu, G.J. Fu, **C. W. Johnson**, Z. Z. Ren, Phys. Rev. C. **106**, 044309 (2022)
68. “Towards precise and accurate calculations of neutrinoless double-beta decay: project scoping workshop report,” V. Cirigliano, *et al.*, J. Phys. G: Nucl. Part. Phys. **49**, 120502 (2022)
69. “An alternative approach to quantum imaginary-time evolution,” P. Jouzdani, **C. W. Johnson**, E. R. Mucciolo, and I. Stetcu, Phys. Rev. A **106**, 062435 (2022).
70. “dmscatter: a fast program for WIMP-nucleus scattering,” **O. C. Gorton**, **C. W. Johnson**, C.-F. Jiao, and **Jonathan Nikoleyczik**, Comp. Phys. Comm. **284**, 108597 (2023).
71. “Proton-neutron entanglement in the nuclear shell model,” **C. W. Johnson** and **O. C. Gorton**, J. Phys. G **50**, 045110 (2023).

72. "Bootstrapped Block Lanczos for large-dimension eigenvalue problems," **R. Zbikowski** and **C. W. Johnson**, *Comp. Phys. Comm.* **291**, 108835 (2023)
73. "New insights into backbending in the symmetry-adapted shell-model framework," **N. D. Heller**, G. H. Sargsyan, K. D. Launey, **C. W. Johnson**, T. Dytrych, J. P. Draayer, *Phys. Rev. C* **108**, 024304 (2023).
74. "Uncertainty quantification of effective transition operators in the shell model," **J. M. R. Fox**, **C. W. Johnson**, and R. Navarro Perez, *Phys. Rev. C* **108**, 054310 (2023).
75. "The uncertainties on the EFT coupling limits for direct dark matter detection experiments stemming from uncertainties of target properties," **D. J. Heimsoth**, **B. Lem**, A. M. Suliga, **C. W. Johnson**, A. B. Balantekin, S. N. Coppersmith, *Phys. Rev. D* **108**, 103031 (2023)
76. "A weak entanglement approximation for nuclear structure," O. C. Gorton and **C. W. Johnson**, *Phys. Rev. C* **110**, 034305 (2024).
77. "Pervasiveness of shape coexistence in nuclear pair condensates," Y. Lei, J. Qi, Y. Lu, H. Jiang, Z. Z. Qin, D. Liu, and **C. W. Johnson**, *Phys. Rev. C* **110**, 054318 (2024).
78. "Shannon entropy of optimized proton-neutron pair condensates," S.-Y. Liang, Y. Lu, Y. Lei, **C. W. Johnson**, G.-J. Fu, J.-J. Shen, *Phys. Rev. C* **111**, 024310 (2025).
79. "Uncertainties in tellurium-based dark matter searches stemming from nuclear structure uncertainties," **D. J. Heimsoth**, **R. Kowalski**, D. H. Speller, **C. W. Johnson**, A. Baha Balantekin, S.N. Coppersmith, *Phys. Rev. D* **111**, 063045 (2025)
80. "Quantum phase transition in atomic nuclei driven by competition between subshell closure and collective motion," S. T. Guo, Y. X. Yu, **C. W. Johnson**, S. Pittel, Y. Lu, H. Jiang, Y. Lei, G. J. Fu, and Z. Z. Ren, *Phys. Rev. C* **112**, L011301 (2025).
81. "Unified description of low-lying states in rare-earth nuclei using the angular-momentum-projected number-conserved BCS method in a shell-model framework," S. T. Guo, Y. X. Yu, **C. W. Johnson**, *et al.*, *Phys. Rev. C* **112**, 054323 (2025)
82. "Systematic analysis of double Gamow-Teller sum rules," H.-J. Xie, Y. Lu, S.-Y. Liang, Y. Lei, **C. W. Johnson**, *Symmetry* **17**, 2134 (2025)
83. "Scattering phase shifts from overlap relations in the J-matrix method", **C. W. Johnson**, Bui Minh Loc, **A. Keller**, K. M. Nollett, *Phys. Rev. C* **113**, 024004 (2026).
84. "Radial excitations and their potential impact on Fermi  $\beta$ -decay rates," L. Xayavong, Y. Lim, N. A. Smirnova, **C. W. Johnson**, *Phys. Rev. C* **113**, 034317 (2026).
85. "Radiative strength functions and the energy-localized Brink-Axel hypothesis," O.C. Gorton, K. Kravvaris, J. E. Escher, and **C. W. Johnson**, *Phys. Rev. C* **113**, 044327 (2026) *"Editor's Suggestion"*
86. "Evolution and coexistence of low-lying configurations in the  $N=80$  isotones," Y. X. Yu, C. Ma, C. Qi, W. Q. Zhang, **C. W. Johnson**, Z. Liu, A. N. Andreyev, and G. J. Fu, *Phys. Rev. C* **114**, 024332 (2026)
87. "Deformation-driven intruder levels in light island-of-inversion nuclei," **C. W. Johnson**, M. A. Caprio, **S. L. Vittal**, *Phys. Rev. C* **114**, 044307 (2026).

*denotes graduate student author*

*denotes undergraduate student author*

#### Conference Proceedings

1. "Application of the Lund String Fragmentation Model at the Beginning of the Scaling Region," F. S. Dietrich and **C. W. Johnson**, in "Research Program at CEBAF II," Report of the 1986 Summer Study Group, V. Burkert, et al., eds., p. 389
2. "The Possibility of Radiogeochemical Limits on Stellar Collapse Rates in the Galaxy," **C. W. Johnson**, in *Trends in Astroparticle Physics*, D. Cline and R. Peccei, editors (World Scientific, Singapore) 1992, p. 526.

3. "From the shell model to the interacting boson model," J. N. Ginocchio and **C. W. Johnson**, in "Frontiers in Physics," T. Otsuka, ed. (World Scientific, 1994).
4. "Finite boson mappings of fermion systems," **C. W. Johnson** and J. N. Ginocchio, *Perspectives for the Interacting Boson Model*, R. F. Casten, et al, eds. (World Scientific, 1994) 201.
5. "Fermion to boson mappings revisited," J. N. Ginocchio and **C. W. Johnson**, *Phys. Rep.* **264** (1996) 153.
6. "Orderly spectra from random interactions: robust results," **C. W. Johnson**, *Rev. Mex. Fiz.* **45 suppl. 2** (1999) 25.
7. "Order from chaos in the shell model," **C. W. Johnson**, *Capture Gamma-Ray Spectroscopy and Related Topics: 10th International Symposium (AIP Conference Proceedings 529)* p. 518, Stephen Wender, ed., (AIP, Melville, New York, 2000).
8. "Pairing from random interactions," **C. W. Johnson**, *Nucl. Phys. A* **704** (2002) 276.
9. "Collectivity, computers, and chaos," **Calvin W. Johnson**, in *Computational and Group Theoretical Methods in Nuclear Physics*, J. Escher, et al, eds (World Scientific, Singapore, 2004); arXiv:nucl-th/0303076
10. "Oblique-basis calculations for  $^{44}\text{Ti}$ ," V.G. Gueorguiev, J. P. Draayer, W. E. Ormand, and **C. W. Johnson**, in *Computational and Group Theoretical Methods in Nuclear Physics*, J. Escher, et al, eds (World Scientific, Singapore, 2004).
11. "Shortcuts to nuclear structure: lessons in Hartree-Fock, RPA, and the no-core shell model," **C. W. Johnson** and I. Stetcu, *Int. J. Mod. Phys. E* **14**, 57 (2005).
12. "Electromagnetic transitions with effective operators," I. Stetcu, B. R. Barrett, P. Navratil, and **C. W. Johnson**, *Int. J. Mod. Phys. E* **14**, 95 (2005).
13. "A Statistical Spectroscopy Approach For Calculating Nuclear Level Densities," E. Teran and **C. W. Johnson**, *European Physical Journal A* **25**, s1.673 (2005).
14. "Collective behavior in random interactions," **C. W. Johnson** and H. Nam, *Rev. Mex. Fis. suppl.* **52**, 44 (2006). (arXiv:nucl-th/0601093.)
15. "The nuclear density of states and the role of the residual interaction," **C. W. Johnson** and E. Teran, Workshop Proceedings on "Perspectives on Nuclear Data for the Next Decade," Bruyères-le-Châtel, NEA NO. 6121 (2006). (arXiv:nucl-th/0512008)
16. "Bulk Properties of Iron Isotopes," E. Algin, et al, Proceedings of the International Conference on Nuclear Structure and Related Topics in Dubna, June 13-17, 2006; *Physics of Atomic Nuclei* **70**, 1634 (2007).
17. "Benchmark calculation of inclusive electromagnetic response in the four-body nuclear system," S. Quaglioni, I. Stetcu, S. Bacca, B. R. Barrett, **C. W. Johnson**, et al. *Nucl. Phys. A* **790**, 372C-375C (2007).
18. "Moment methods and the nuclear level density," **C. W. Johnson**, Proceedings of the 2007 International Workshop on Compound-Nuclear Reactions and Related topics, p. 53 (AIP Conference Proceedings **1005**, J. Escher, F.S. Dietrich, T. Kawano, and I.J. Thompson, eds., Melville, New York 2008).
19. "The Origin of Order in Random Matrices with Symmetries," **C.W. Johnson** in, "Beauty in Physics: Theory and Experiment," AIP Conference Proceedings 1448, R. Bijker, ed., p. 101 (AIP, Melville, NY 2012) ; arxiv:1206.5748
20. "Random matrices, point-group symmetries, and many-body systems," **C. W. Johnson**, *Rom. Journ. Phys.* **60**, 772–781 (2015); proceedings of "Advanced many-body and statistical methods in mesoscopic systems II", September 1-5, 2014, Brasov, Romania.
21. "Proton-neutron pairing in self-conjugate nuclei in a formalism of quartets," M. Sambataro, N. Sandulescu, and **C. W. Johnson**, *Rom. Journ. Phys.*, **60**, 799–804 (2015); proceedings of "Advanced many-body and statistical methods in mesoscopic systems II", September 1-5, 2014, Brasov, Romania.

22. "Toward a Fundamental Understanding of Nuclear Reactions and Exotic Nuclei," S. Quaglioni, G. Hupin, J. Langhammer, C. Romero-Redondo, M. D. Schuster, **C. W. Johnson**, P. Navratil, and R. Roth, Proceedings of the Conference on Advances in Radioactive Isotope Science (ARIS2014).
23. "Parallel Implementation and Performance Optimization of the Configuration-Interaction Method," H. Shan, K. S. McElvain, **C. W. Johnson**, S. Williams, and W. E. Ormand, *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing 2015)*, ACM, 9 (2015).
24. "A Locality-based Threading Algorithm for the Configuration-Interaction Method," H. Shan, S. Williams, **C. Johnson**, and K. McElvain, 18th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC 2017), Orlando, Florida, June 2017, <http://escholarship.org/uc/item/9sf515zf>
25. "Improving Reduction Performance With OpenMP and Data Compression on Manycore Architectures," H. Shan, W. Williams, and **C. W. Johnson**, 9<sup>th</sup> IEEE International Workshop on Performance Modeling, Benchmarking, and Simulation of High Performance Computation (PMBS18), Dallas, TX, Nov 2018, <https://crd.lbl.gov/assets/Uploads/pmb18-reduce-final.pdf>
26. "Current Status of Very-Large-Basis Hamiltonian Diagonalizations for Nuclear Physics," **C. W. Johnson**, arXiv:1809.07869, published in *Proceedings of 13<sup>th</sup> Conference on the Intersections of Particle and Nuclear Physics (CIPAN 2018)*, Palm Springs, CA, edited by W. C. Haxton, eConf C18-05-29.
27. "A problem in the statistical description of beta-delayed neutron emission," **O. C. Gorton**, **C. W. Johnson**, and J. Escher, arXiv:2210.05904, EPJ Web of Conferences **284**, 03013 (2023).
28. "A weak entanglement approximation for nuclear structure: a progress report," **C. W. Johnson** and O. C. Gorton, arXiv:2504.00273, J. Subatomic Particles and Cosmology **3**, 100061 (2025).
29. "A weak entanglement approximation for nuclear structure: review and recent developments," **C. W. Johnson**, arXiv:2509.12549. Proceedings of the 14<sup>th</sup> Spring Seminar in Nuclear Physics, EPJA Web of Conferences **342**, 010011 (2025).
30. "Unified shell-model study of collective motion in the rare earth isotopes," S. Pittel, S. T. Guo, Y. X. Yu, **C. W. Johnson**, Y. Lu, H. Jiang, Y. Lei, G. J. Fu, and Z. Z. Ren, EPJ Web of Conferences **386**, 01005 (2026).

### Book Chapters

1. "The Anatomy of Atomic Nuclei: Illuminating Many-Body Wave Functions through Group-Theoretical Decomposition," **C. W. Johnson**, in *Emergent Phenomena in Atomic Nuclei from Large-Scale Modeling: A Symmetry-Guided Perspective*, K. D. Launey, ed., World Scientific, September 2017. ISBN: 78-981-3146-04-4; see also arXiv:1708.01952

### Preprints

1. "A Precise Calibration of the SLAC 8 GeV Spectrometer Using the Floating Wire Technique," L. Andivahis, F. S. Dietrich, **C. W. Johnson**, A. Lung, G. G. Petratos, K. Van Bibber, and L. W. Whitlow, SLAC-PUB-5733.
2. "Statistical models of nuclear level densities," **C. W. Johnson**, J. Nabi, W. E. Ormand, arXiv:nucl-th/0105041.
3. "Reliable estimates of level densities using statistical spectroscopy," J. Nabi, **C. W. Johnson**, W. E. Ormand, arXiv:nucl-th/0111067
4. "Statistical spectroscopic calculations of expectation values and spin-cutoff factors," **C. W. Johnson**, J. Nabi, W. E. Ormand, arXiv:nucl-th/0111068.

5. "Study of  $^{44}\text{Ti}$  in a Mixed-Symmetry Basis," V. G. Gueorguiev, J. P. Draayer, W. E. Ormand, and **C. W. Johnson**, arXiv:nucl-th/0305054.
6. "Random matrices, symmetries, and many-body states," **C.W. Johnson**, arxiv:1103.4161.
7. "Many-body approximations for atomic binding energies," **M. D. Schuster**, **C. W. Johnson**, and **J. T. Staker**, arxiv:1111.3998.
9. "Excitation spectra from angular momentum projection of Hartree-Fock states and the configuration-interaction shell model," **J. T. Staker** and **C. W. Johnson**, arXiv: 1304.7292
10. "BIGSTICK: A flexible configuration-interaction shell-model code," **C.W. Johnson**, W. E. Ormand, K. S. McElvain, and H.-Z. Shan, arXiv:1801:08432
11. "Pairing strength and quadrupole-soft tin isotopes," L.-A. Nguyen, M.-L. Bui, P. Papakonstantinou, **C. W. Johnson**, N. Auerbach, arXiv:2509.13475, submitted to PRC
12. "RHODIUM: A post-processor for BIGSTICK configuration-interaction wave functions", **C. W. Johnson**, arXiv:2510.23787
13. "Centroids of nuclear shell-model Hamiltonians, with optimization of energy-based truncation schemes," **C. W. Johnson** and **A. Keller**, arXiv:2511.03161
14. "Benchmarking electromagnetic observables in angular-momentum projected Hartree-Fock," **R. Bernal-Gonzalez** and **C. W. Johnson**, arxiv.org:2608.06281
15. "Neutron-nucleus scattering in an  $L^2$ -integrable basis," M.-L. Bui and **C. W. Johnson**, arxiv:2609.38338.

*denotes graduate student author*

*denotes undergraduate student author*

#### Other invited articles

1. "Shadows of symmetries," **C. W. Johnson**, *Nuclear Physics News International* **29**, 18-21 (2019) (doi.org/10.1080/10619127.2019.1603554).
2. "News & Views: Competition at nuclear extremes explains why neutrons drip off nuclei," **C. W. Johnson**, *Nature* **587**, 40-41 (2020). (doi.org/10.1038/d41586-020-03016-7)

#### Conference Proceedings edited

Calvin W. Johnson

1. *Proceedings of the International Conference on "Blueprints for the Nucleus"*, **C. W. Johnson**, ed., Intl. J. Mod. Phys E, **14**, 2005.
2. *Horizons of Innovative Theories, Experiments, and Supercomputing in Nuclear Physics (HITES 2012)*, K. D. Launey, M. A. Caprio, J. E. Escher, J. G. Hirsch, and **C. W. Johnson**, eds., Journal of Physics: Conference Series **403**, IOP Publishing, 2012.

#### Open-source computer programs

1. BIGSTICK, A flexible configuration-interaction shell-model code, written in Fortran 90. **C.W. Johnson**, W. E. Ormand, K. S. McElvain, and H.-Z. Shan. Available at <https://github.com/cwjsdsu/BigstickPublick>
2. RHODIUM, A post-processor for BIGSTICK wave functions, written in Fortran 90, **C. W. Johnson**. Available at [github.com/cwjsdsu/Rhodium](https://github.com/cwjsdsu/Rhodium).

1. "Supernova contributions to the Mo-Tc experiment," Caltech Seminar, August 1988.
2. "Supernova contributions to the Mo-Tc experiment," Los Alamos Seminar, October 1988.
3. "Geochemical integration of the galactic neutrino flux from stellar collapses," APS DNP meeting Santa Fe, October 1988.
4. "A Full 4hw Calculation of  $^{16}\text{O}$  and Gamow-Teller strengths" UCLA, Feb 1990.
5. "Mining for Supernova Neutrinos," University of Wisconsin, October 1990.
6. "Weak interaction rates in  $^{16}\text{O}$ " APS DNP meeting Urbana-Champaign, Oct 1990.
7. "A Full 4hw Calculation of  $^{16}\text{O}$ ," MIT, February 1991.
8. "Electro-integration of the deuteron," MIT-Bates Lab, February 1991.
9. "Monte Carlo Path Integrals for the Nuclear Shell Model," Computational Physics '91 Conference, San Jose CA, April 1991.
10. "Electro-integration of the deuteron," APS DNP meeting East Lansing, Oct 1991.
11. "Fate of  $^7\text{Be}$  in the Sun," Michigan State University, January 1992.
12. "Monte Carlo Path Integrals for the Nuclear Shell Model," U. Frankfurt, June 1992.
13. "Monte Carlo Path Integrals for the Nuclear Shell Model," Niels Bohr Institute, June 1992.
14. "Monte Carlo Path Integrals for the Nuclear Shell Model," Univ. Muenster, June 1992.
15. "Fate of  $^7\text{Be}$  in the Sun," International Conference on Nuclei in the Cosmos, Karlsruhe Germany, July 1992.
16. "Monte Carlo Path Integrals for the Nuclear Shell Model," U. Washington, Sept 1992.
17. "Monte Carlo Path Integrals for the Nuclear Shell Model," CEBAF, Dec 1992.
18. "Adventures in the Many-body problem," New Mexico State Univ Colloquium, Jan 1993.
19. "Optimal Paths for Response Functions," APS Washington Meeting, April 1993.
20. "The Fate of  $^7\text{Be}$  in the Sun," Workshop on the Atomic/Nuclear Frontier (sponsored by DAMOP) Reno, Nevada, May 16, 1993.
21. "Exact Fermion-pair-to-boson mapping," Caltech, June 1993.
22. "Monte Carlo methods for the many-body problem," Florida State University, August 1993.
23. "Adventures in the Many-body problem," University of Arizona Colloquium, Sept 1993.
24. "Mean fields for fermion pairs," Workshop on High Spins and Novel Deformations, Trento, Italy, December 1993.
25. "Exact fermion-pair to boson mapping," Michigan State University Colloquium, Feb 1994.
26. "Adventures in the Many-body problem," Notre Dame Colloquium, February 1994.
27. "Spin-offs (boson mappings) from the AFMC project," Workshop on Monte Carlo Methods for the Nuclear Shell Model, Trento, Italy March 1994.
28. "Frontiers in nuclear many-body physics," Lawrence Berkeley Laboratory, May 1994.
29. "Finite boson mappings of fermion systems," International Conference on Perspectives for the Interacting Boson Model, Padua, Italy, June 1994.
30. "Boson mappings and related topics," Michigan State University, August 1994.
31. "Neutrinos in the Universe," Louisiana State University Colloquium, March 1995.
32. "Neutrinos in the Universe," TRIUMF, October 1995.
33. "Random matrix theory of effective interactions," International Conference on Microscopic Many-body Methods, European Centre for Theoretical Studies, Trento, Italy, May 1997.
34. "Random matrix theory of effective interactions," Los Alamos National Lab, July 1997.
35. "Random matrix theory of effective interactions," APS DNP Fall meeting, Whistler BC, October 1997.
36. "Order out of chaos in the shell model," Institute for Nuclear Theory Seminar, Seattle, Washington, December 1997.
37. "Orderly spectra from random interactions," APS DNP meeting, Santa Fe, Oct 1998.
38. "Orderly spectra from random interactions," XXII Symposium on Nuclear Physics, Oaxtepec, Mexico, January 1999.

39. "Orderly spectra from random interaction," APS Centennial Meeting, Atlanta, March 1999.
40. "Orderly spectra from random interaction," Workshop on Algebraic Methods in Many-body systems, Institute for Nuclear Theory, Seattle, March 1999.
41. "Random matrices in nuclear structure," International Workshop on Advances in the Nuclear Shell Model, Trento, Italy, June 1999.
42. "Random matrix calculations of strength functions," Workshop on Low-energy Neutrino Physics, Institute for Nuclear Theory, Seattle, July 1999.
43. "Order from Chaos in the Shell Model," Tenth International Symposium on Capture Gamma-Ray Spectroscopy and Related Topic, Santa Fe, September 1999.
44. "Orderly spectra from random interaction," Theory Division, Los Alamos National Laboratory, September 1999.
45. "Random matrix calculations of level densities and strength functions," International Workshop on Nuclear Level Densities, Livermore, October 1999.
46. "Pairing from random interactions," Shell Model 2000, RIKEN, Japan, March 2000.
47. "Order from Chaos in the Nuclear Shell Model," APS Spring Meeting, Long Beach CA, April 2000.
48. "Order from chaos in nuclei: recent developments," T-16, Los Alamos National Lab, February 2001.
49. "Order Out of Chaos in Atomic Nuclei," San Diego State University Colloquium, Feb, 2001.
50. "Order out of Chaos in the Nuclear Shell Model," Triangle Universities Nuclear Physics Seminar, November 2001.
51. "Statistical models of nuclear level densities," APS DNP Meeting, East Lansing, Oct 2002.
52. "How to weigh a neutrino," Astronomy/Physics seminar, San Diego State, Nov 2002.
53. "Collectivity, Chaos, and Computing," Computational and Group Theoretical Methods in Nuclear Physics, Playa del Carmen, Mexico February 2003.
54. "New and improved nuclear physics for nuclear astrophysics," Center for Astrophysics and Space Sciences, UCSD, April 2003.
55. "Order from random interactions: review and prospects," International Workshop on Recent Advances in the Nuclear Shell Model, ECT\*, Trento, Italy, June 2003.
56. "Order from randomness in quantum many-body systems," 2<sup>nd</sup> Meeting of the University of Alberta Theoretical Physics Institute, Banff, Canada, August 2003.
57. "Boing! Boing! The bouncing nucleus," Physics colloquium, San Diego State, Oct 2003.
58. "Microscopic modeling of nuclear level densities using spectral distribution theory," 2004 SSSA Program Symposium, Albuquerque, March 2004.
59. "Microscopic modeling of nuclear level densities using spectral distribution theory," T-16 seminar, Los Alamos National Lab, March 2004.
60. "Boing! Boing! The bouncing nucleus," CSU Los Angeles Colloquium, April 2004.
61. "Shortcuts to Nuclear Structures: Lessons and Applications of Hartree-Fock and RPA," Blueprints for the Nucleus Conference, Feza Gürsey Institute, İstanbul, Turkey, May 2004.
62. "Microscopic modeling of nuclear level densities using spectral distribution theory," Nuclear Theory and Modeling seminar, Lawrence Livermore National Lab, June 2004.
63. "Gamow-Teller transitions and deformation in RPA," APS DNP meeting, Chicago, Oct 2004.
64. "Nuclear level densities from spectral distribution theory," APS DNP meeting, Chicago, October 2004.
65. "RPA and the shell model," Institute for Nuclear Theory, U. Washington, November 2004.
66. "Recent developments in shell model-based calculations of nuclear level densities," Lawrence Livermore National Lab, June, 2005.
67. "Microscopic modeling of nuclear level densities using spectral distribution theory: recent developments," 2005 SSAA Program Symposium, Las Vegas NV, August 2005.

68. "The nuclear density of states and the role of the residual interaction," Perspectives for Nuclear Data for the Next Decade, CEA DIF Bruyeres-le-Chatel, France, September 2005.
69. "Random interactions and collective motion," XXIX Symposium on Nuclear Physics, Cocoyoc, Mexico, January 2006.
70. "Hacking the atomic nucleus," SDSU Computational Science Colloquium, April 2006.
71. "Archimedes Goes Nuclear," SDSU Physics Colloquium, November 2006.
72. "Hartree-Fock, RPA, and Beyond," International Conference on Correlations Beyond the Mean-Field, European Centre for Theoretical Studies, Trento, Italy, June 2007.
73. "Divide and Conquer: New Ideas for Shell Model Algorithms," Lawrence Livermore National Lab, July 2007.
74. "Moment methods and the nuclear level density," CNR\*07, Fish Camp CA, October 2007.
75. "Cold fermion gases as a test of many-body theories," UNEDF Annual Meeting, Pack Forest, WA, June 2008.
76. "Moment methods for modeling nuclear level densities," SNP 2008, Athens, OH, June 2008.
77. "Cold fermion gases as a test of many-body theories," JUSTIPEN-EFES-Hokudai-UNEDF workshop, Onuma Park, Japan, July 2008.
78. "Cold gases and cartoon nuclei," NPAC forum, Univ of Wisconsin-Madison, Sept. 2008.
79. "What can cold atomic gases teach us about nuclear structure?" APS DNP Oakland, Oct 2008.
80. "Computational needs for double-beta decay calculations," Workshop on Exascale Computing for Nuclear Physics, Gaithersburg MD, Jan 2009.
81. "Shell-model CI codes and applications," UNEDF Annual Meeting, Pack Forest, WA June 2009.
82. "Model-space truncation in shell-model fits," Joint APS/ JPS Hawaii, Oct 2009.
83. "How approximate is the random phase approximation? Comparing RPA against full configuration-interaction calculations," Multidisciplinary Workshop on the Random Phase Approximation, Universite Pierre et Marie Curie, Jan 26-29, 2010
84. "Making Effective Interactions More Effective," Joint NSCL-EFES Workshop on Perspectives on the Modern Shell Model, Michigan State University, Feb 4-6 2010.
85. "Making effective interactions more effective," UNEDF Annual Meeting, MSU, June 2010
86. "Add, multiply, divide, and conquer," SDSU Computational Sciences Colloquium, Sept 2010
87. "Add, multiply, divide, and conquer," UCSD Quantum Chemistry Seminar, Oct 2010
88. "Making effective interactions more effective," APS DNP meeting, Sante Fe, Nov 2010.
89. "Factorization algorithms for configuration-interaction," Perspectives on the no-core shell model, TRIUMF, Feb 2011.
90. "Cold atomic gases and effective interactions," Benchmarking the many-body problem, Institute for Nuclear Theory/University of Washington, March 2011.
91. "Shell-model Fermi gas calculations of level densities," 3rd Workshop on Level Density and Gamma Strength, Oslo, May 2011
92. "Progress in the BIGSTICK shell-model code", UNEDF annual meeting, June 2011
93. "Random matrices, symmetries, and many-body states," APS DNP meeting, East Lansing, Oct 2011.
94. "The Origin of Nuclear Spin," Iowa State University, Dec 2011.
95. "How to Save Terabytes of Memory," Workshop on the No-Core Shell Model, TRIUMF, Feb 2012.
96. "The Origin of Order in Random Matrices with Symmetries," Beauty in Physics, Cocoyoc, Mexico, May 2012.
97. "Exploring Mean-Field Calculations of the Nuclear Density of States," Theory Seminar, Los Alamos National Lab, 21 August 2012.
98. "Random interactions, random matrices, and emergent symmetries," Workshop in Honor of George Bertsch's 70th Birthday, September 2012, Seattle WA.

99. "The Origin of Nuclear (Not Nucleon) Spin," TRIUMF theory seminar, September 11, 2012, TRIUMF, Vancouver, Canada.
100. "Big Calculations in Little Boxes: the BIGSTICK shell-model code," September 26, 2012, INT program on "Light Nuclei from First Principles."
101. "The Origin of Order in Random Matrices with Symmetries," APS DNP meeting Newport Beach, CA, Oct 25, 2012.
102. "Beyond Noether's Theorem: What Happens when Randomness Meets Symmetry," TU Darmstadt Nuclear Theory Seminar, July 11, 2013.
103. "Almost Universal Behavior in Many-Body Hamiltonians," APS DNP Meeting, Newport News VA, Oct 25, 2013.
104. "Randomness, Symmetries, and Regularities in Many-body Systems," 2nd CUSTIPEN Workshop, Peking University, December 2013.
105. "Factorization Algorithms for Large-Scale Many-body Calculations," Peking University Nuclear Theory Seminar, December 2013.
106. "The Origin of Nuclear Spin," Shanghai Jiao Tong University Nuclear Theory Seminar, December 2013.
107. "Spin-orbit decomposition of *ab initio* nuclear wavefunctions," Workshop on Nuclear Structure & Reactions," TRIUMF, February 2014.
108. "Factorization Algorithms for Large-Scale Many-body Calculations," ICNT Workshop "Physics of Exotic Nuclei," RIKEN Wako Campus, June 2014.
109. "Random matrices, point-group symmetries, and many-body systems," Advanced many-body and statistical methods in mesoscopic systems II, Brasov, Romania, September 2014.
110. "Update on BIGSTICK progress," CalLat collaboration meeting, Asilomar CA, Oct 2014.
111. "Spin-orbit decomposition of *ab initio* nuclei," APS DNP meeting, Waikiloa, HI, Oct. 2014.
112. "Nuclear structure calculations for an atlas of dark matter experiments," Nuclear Aspects of Dark Matter Searchers, Institute for Nuclear Theory, University of Washington, Dec 2014.
113. "Large scale calculations of nuclear structure and nuclear transition matrix elements," Workshop on Progress in *ab initio* Techniques in Nuclear Physics, TRIUMF, Feb. 2015.
114. "Add, Multiply, Divide and Conquer: On-the-fly Algorithms for Many-body Calculations," SIAM Conference on Computation Science and Engineering (CSE 15), Salt Lake City, March 2015.
115. "Large scale shell-model calculations for open shell nuclei," ICNT workshop: Theory for open shell nuclei near the limits of stability, MSU/NSCL/FRIB May 2015.
116. "Large scale shell-model calculations for nuclear structure", PKU-CUSTIPEN workshop on "Advances in computations of nuclear structure and nuclear forces," Peking University, Aug 1-6, 2015.
117. "Strength functions in the shell model," IMP-CUSTIPEN workshop on "Properties of exotic nuclei and asymmetric nuclear matter," IMP, Lanzhou, Aug 8-12 2015.
118. "Large scale configuration-interaction calculations for nuclear structure," Workshop on Computational Advances in Nuclear and Hadronic Physics, Yukawa Institute of Theoretical Physics, University of Kyoto, October 2015.
119. "Strength function sum rules and the Brink-Axel hypothesis," APS DNP meeting, Santa Fe, October 2015.
120. "Spectral distribution theory and the evolution of forces under the similarity renormalization group," Workshop on progress on *ab initio* nuclear theory, TRIUMF, February 2016.
121. "Systematics of strength functions and the Brink-Axel hypothesis," Workshop on Statistical properties of nuclei, ECT\*, Trento, Italy, July 2016.
122. "Symmetry, simplicity, and complexity in nuclear structure," Workshop on Proton-Neutron Pairing and Quartet Correlations in Nuclei, ECT\*, Trento, Italy, September 2016.

123. "Tracing the evolution of nuclear forces under the similarity renormalization group," APS DNP meeting, Vancouver BC Canada, October 2016.
124. "*Ab initio* calculations of rotational bands in medium and heavy nuclei," Workshop on progress on *ab initio* nuclear theory, TRIUMF, February 2017.
125. "The shell model and beyond for medium and heavy nuclei," MIAPP Programme on astro-, particle, and nuclear physics aspects of direct dark matter detection, Technical University of Munich, March 2017.
126. "The anatomy of atomic nuclei," Workshop on "Probing fundamental interactions by low energy excitations – Advances in theoretical nuclear physics," KTH, Stockholm, Sweden, June 2017.
127. "Preliminary studies in modeling excitation spectra of medium and heavy nuclei," Peking University Nuclear theory seminar, October 2017.
128. "Transition sum rules in the no-core shell model," Workshop on progress on *ab initio* nuclear theory, TRIUMF, February 27, 2018.
129. "Beyond the Brink-Axel hypothesis," LBNL Nuclear Physics Forum, Mar 9, 2018.
130. "Shell model calculations for hadronic parity violation," N3AS workshop on Hadronic Parity Nonconservation, Kavli Institute, UCSB, Santa Barbara, Mar 16, 2018.
131. "Transition sum rules in *ab initio* calculations," Chengdu-CUSTIPEN workshop on theory of rare nuclear decays, Sichuan University, May 2018.
132. "Proton-neutron wave function factorization and entanglement entropy," Peking University Nuclear theory seminar, May 2018.
133. "Current status of very-large-basis Hamiltonian diagonalization for nuclear physics," CIPANP 2018, Indian Wells, June 2018.
134. "Overview of many-body methods," FRIB theory workshop on "From bound state to the continuum," Michigan State University, June 2018.
135. "Advances in large basis shell model calculations," workshop on "Structure and Reaction for the 2020s," GANIL, France, July 2018.
136. "Adventures in quasi-dynamical symmetries," International Symposium on Symmetry, Simplicity, and Beauty in Atomic Nuclei, Shanghai, China, September 2018.
137. "Electromagnetic sum rules in the no-core shell model," Joint APS DNP-Japan Physical Society meeting, Waikaloa, HI, October 2018.
138. "Ingredients of classical computing for shell model calculations," Workshop on Quantum Computing for Nuclear Physics, Santa Fe, January 25, 2019.
139. "The similarity renormalization group seen through the lens of group theory," Workshop on recent progress in *ab initio* techniques for nuclear physics, TRIUMF, February 28, 2019.
140. "The anatomy of atomic nuclei," University of Idaho colloquium March 28, 2019.
141. "The anatomy of nuclei, and of nuclear many-body methods," Lawrence Livermore National Lab, Nuclear Theory and Data seminar, April 12, 2019.
142. "From the shell model to generator coordinates and back," Workshop on Symmetry Breaking and Symmetry Preserving Methods, CEA ESNT Saclay, France, May 15, 2019.
143. "Novel similarity renormalization group through the lens of group theory," Many-body systems with strong interactions, Lanzhou, June 11, 2019.
144. "Atoms as laboratories for new physics," Qufu Normal Univ. Colloquium, Jun 18, 2019.
145. "Application of generator coordinate methods to the shell model," PKU seminar, Jun 20, 2019.
146. "Entanglement entropy and proton-neutron interactions," Workshop on Recent Advances in Proton-Neutron Paring and Quartet Correlations in Nuclei, Session 2," CEA ESNT Saclay, France, Sept 4, 2019.
147. "Workshop summary," Workshop on Recent Advances in Proton-Neutron Paring and Quartet Correlations in Nuclei, Session 2," CEA ESNT Saclay, France, Sept 6, 2019.

148. "The anatomy of atomic nuclei," TAMU-Commerce Physics Colloquium, Oct 10, 2019.
149. "Beyond the Brink-Axel hypothesis," T-2 LANL Seminar, Dec 5, 2019.
150. "Stronger nuclear structure calculations for weak physics," Workshop "Looking for  $\nu$ -physics on Earth and in the Cosmos," Lawrence Berkeley Lab, Jan 8, 2020.
151. "Extending the reach of nuclear structure calculations," TRIUMF nuclear theory seminar, Jan 14, 2020.
152. "What we talk about when we talk about quantum computing," SDSU Computational Science Research Center colloquium, Feb 7 2020.
153. "Pushing the limits of no-core shell model calculations," APS DNP Fall meeting, New Orleans/remote, Oct 29, 2020.
154. "What we talk about when we talk about quantum computing," CSU San Marcos Physics colloquium (remote), Feb 12, 2021.
155. "Unmixing symmetries," APS April Meeting (remote), April 20, 2021
156. "What we talk about when we talk about quantum computing," SDSU Computer Science colloquium, April 23, 2021.
157. "How to find eigenpairs of HUGE matrices," Computational Science Research Center colloquium, April 30, 2021.
158. "Proton-neutron entanglement entropy in shell model calculations," APS DNP Fall meeting, Boston/remote, Oct 12, 2021.
159. "Large-scale shell-model calculations for parity nonconservation," INT Workshop on Hadronic Parity Nonconservation II, Jan 25, 2022.
160. "Beyond the (current) shell model," Long-term workshop on 'Mean-field and Cluster Dynamics in Nuclear Systems,' June 3, 2022, Kyoto University (*virtual*).
161. "Unmixing symmetries," 10<sup>th</sup> International Workshop on quantum phase transitions in nuclei and atomic systems, July 12, 2022, Dubrovnik, Croatia.
162. "Lipkin model on a quantum computer," 10<sup>th</sup> International Workshop on quantum phase transitions in nuclei and atomic systems, July 14, 2022, Dubrovnik, Croatia.
163. "A modified Brink-Axel hypothesis for astrophysical Gamow-Teller transitions," APS DNP Fall Meeting, New Orleans, LA, Oct 28, 2022.
164. "What's new in supercomputing – 2022 edition," NSAC Long Range Plan Town Hall (Nuclear structure and astrophysics), Argonne National Lab, Nov. 15, 2022.
165. "Extending the reach of the shell model," Nuclear Data and Modeling Seminar, Lawrence Livermore National Lab, Feb 6, 2023
166. "Extending the reach of the shell model," Workshop on Progress in Ab Initio Nuclear Theory, TRIUMF, Feb 28, 2023
167. "Shell model calculations for neutrino and BSM physics," INT Workshop on Nuclear, Neutrino, and BSM Physics, University of Washington, April 17, 2023.
168. "Challenges of the shell model," FRIB-TA Workshop on Theoretical Justifications and Motivations for Early High-Profile FRIB Experiments, May 26, 2023.
169. "Successes and challenges of the no-core shell model," Virtual Festschrift for James Vary's 80<sup>th</sup>, June 5, 2023; hosted by IMP-CAS, Lanzhou, China.
170. "Real-time quantum Lanczos for nuclear structure," Workshop on 'Nuclear and particle physics on a quantum computer,' ECT\*, Trento, Italy, June 5, 2023.
171. "Disentangling nuclear wave functions," Workshop on "Experimental and Theoretical Aspects of Neutron-Proton Pairing," CEA ESNT, Saclay, France, Sept 7, 2023.
172. "Workshop Summary," Workshop on "Experimental and Theoretical Aspects of Neutron-Proton Pairing," CEA ESNT, Saclay, France, Sept 8, 2023.
173. "The stories behind the story of 'Oppenheimer'," SDSU Physics Colloquium, Feb 16, 2024
174. "Islands of inversion and other challenges to the no-core shell model," Progress on Ab Initio Nuclear Theory (PAINT) Workshop, TRIUMF, Feb 27, 2024.

Talks (continued)

Calvin W. Johnson

175. "Insights into large-scale shell-model calculations," T-2 Seminar, Los Alamos, April 2, 2024
176. "Deconstructing nuclear wave functions," LASNPA XIV, Mexico City, June 17, 2024.
177. "A brief history of a big idea for a small thing," Symposium on the 75<sup>th</sup> anniversary of the shell model, Argonne National Lab, July 19, 2024.
178. "Quantum information informing nuclear structure calculations," APS DNP Meeting, Boston, Oct 9, 2024.
179. "A weak entanglement approximation for nuclear structure," NTSE (Nuclear Theory in the Supercomputing Era) 2024, Pusan, Korea, Dec 2, 2024.
180. "Extending the reach of the shell model: a progress report," PAINT (Progress on Ab Initio Nuclear Theory) Workshop, TRIUMF, Vancouver, Canada, Feb 25, 2025.
181. "Quantum information informing insights into nuclear structure," APS Global Summit Mini-symposium: quantum information and nuclear structure I (invited), Anaheim, Mar 17, 2025
182. "The weak entanglement approximation for nuclear structure," APS Global Summit, Anaheim, March 18, 2025
183. "Predominance of  $J=0$  pairing in nuclei: a signature of pairing?," ESNT Workshop on Pairing in nuclei, May 16, 2025.
184. "The weak entanglement approximation for nuclear structure," 14<sup>th</sup> Int'l Spring Seminar on Nuclear Structure, Ischia, Italy, May 22, 2025.
185. "Scattering and reactions in a shell-model framework," NNSA SSAP Symposium, Chicago, June 10, 2025.
186. "Divide, project, recouple: accelerating beyond-mean-field calculations," APS DNP meeting, Chicago, October 19, 2025.
187. "Intruder states in the no-core shell model," Progress in Ab Initio Nuclear Theory workshop, TRIUMF, University of British Columbia, February 27, 2026.
188. "Scattering in a shell-model basis," Nuclear physics for astrophysics, ECT\* Workshop, Trento, Italy, May 19, 2026.
189. "Scattering and reactions in the shell model," Quantum physics of stars, INT Workshop, Seattle, July 18, 2026.
190. "Does the nuclear ground state have a temperature? and other questions," Workshop on "Many-body correlations, phase transitions, and clustering," CEA ESNT, Saclay, France, Sept 12, 2026
191. "There are still surprises left in the nuclear shell model," GANIL seminar, Sept 17, 2026