Steven Ragnar Stroberg

Curriculum Vitae

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Positions Held

- 2021-present Assistant Physicist, Theory group, Argonne National Laboratory
- 2018-2021 Research Assistant Professor, Physics Department, University of Washington
- 2017-2018 Visiting Assistant Professor, Physics Department, Reed College
- 2014-2017 Postdoctoral Fellow, TRIUMF Theory Department
- 2009-2014 Graduate Research Assistant, National Superconducting Cyclotron Laboratory

Education

- PhD Physics, Michigan State University, 2014
  "Single-Particle Structure of Neutron-Rich Si Isotopes" – Advisor Alexandra Gade
- MS Physics, Michigan State University, 2011
- BS Nuclear Engineering (high honors) University of California, Berkeley, 2009

Research

Current interests:

- Development of the in-medium similarity renormalization group (IMSRG) approach to *ab initio* nuclear structure, and extending its applicability to the entire nuclear chart.
- Developing a consistent theoretical framework for nuclear structure and reactions.
- Nuclear physics input for searches for physics beyond the standard model.
- Uncertainty quantification for non-perturbative quantum many-body methods.

Past topics:

- Experimental nuclear structure - gamma spectroscopy and knockout reactions.
- Evolution of shell structure in exotic isotopes.

Selected Publications

- *Non-empirical interactions for the nuclear shell model: an update*
  S. R. Stroberg, H. Hergert, S. K. Bogner, J. D. Holt,
  Ann. Rev. of Nucl. Part. Sci. 69, 307 (2019)
- *A nucleus-dependent valence-space approach to nuclear structure*
  S. R. Stroberg, A. Calci, H. Hergert, J. D. Holt, S. K. Bogner, R. Roth, A. Schwenk,
  Phys. Rev. Lett. 118, 032502 (2017)
- *Discrepancy between experimental and theoretical β-decay rates resolved from first principles*
  P. Gysbers, G. Hagen, J. D. Holt, G. R. Jansen, T. D. Morris, P .Navrátil, T. Papenbrock, S. Quaglioni, A. Schwenk, **S. R. Stroberg**, and K. A. Wendt,
  Nature Physics 15, 428 (2019)
- *Ground and excited states of fully open-shell nuclei from ab initio in-medium SRG*
  S. R. Stroberg, H. Hergert, J. D. Holt, S. K. Bogner, and A. Schwenk,
  Phys. Rev. C 93, 051301(R) (2016)
- *Ab initio electromagnetic transitions with the in-medium similarity renormalization group*
  N. Parzuchowski, **S. R. Stroberg**, H. Hergert, P. Navrátil,
  Phys. Rev. C 96 034324 (2017)

- *Structure of the lightest tin isotopes*
  T. D. Morris, J. Simonis, **S. R. Stroberg**, C. Stumpf, G. Hagen, J. D. Holt, G. R. Jansen, T. Papenbrock, R. Roth, and A. Schwenk,
  Phys. Rev. Lett. 120, 152503 (2018)
- *Saturation with chiral interactions and consequences for finite nuclei*
  J. Simonis, **S. R. Stroberg**, J. D. Holt, and A. Schwenk ,
  Phys. Rev. C 96 014303 (2017)

Teaching and Mentoring

- University of Washington Autumn 2019-Winter 2020
  Covered 5 lectures + office hours of Physics 321/322 - Electromagnetism
- Reed College Spring 2018
  Physics 322 - Electrodynamics II lecture; Physics 102 - General Physics II conference
- Reed College Fall 2017
  Physics 321 - Electrodynamics I lecture; Physics 201 - Oscillations and Waves lecture/lab; Physics 101 General Physics I conference
- TALENT School 2018, Xinxiang China
  Presented lectures on ab initio nuclear theory to graduate students
- Reed College 2017-2018 senior thesis advisor, Ion Mitikorn Wood-Thanan
  "Being on the hyperball: The quantum mechanical description of the hydrogen atom in a spherical universe"
- Reed College 2017-2018 senior thesis advisor, Matyas Szabo
  "A GPU parallel implementation of the Ising model"
- Reed College 2017-2018 senior thesis advisor, Helen Zhang
  "Redefining nucleons: renormalizing the creation operator"
- Co-supervisor, Colorado School of Mines MSc Thesis, Matt Martin 2018-2019
  "Benchmarking isospin symmetry breaking in ab initio nuclear theory via the isobaric multiplet mass equation in $T = 1$ superallowed β decay systems
- Co-supervisor: C. Gwak, Undergraduate Co-op student at TRIUMF 2017
  Project: Theoretical investigation of nuclei in a harmonic trap
- Co-supervisor: O. Drozdowski, DAAD RISE Internship at TRIUMF (10 weeks) 2016
  Project: The isobaric mass multiplet equation from first principles
- Co-supervisor: S. Leutheusser, Undergraduate Co-op student at TRIUMF 2016
  Project: Ab initio treatment of dark matter scattering
- Co-supervisor: D. Livermore, Undergraduate Co-op student at TRIUMF 2016
  Project: Application of in-medium SRG to atoms
- Co-supervisor: C. Payne, UBC Masters Student 2015-2018
  Project: Ab initio treatment of neutrinoless double beta decay
- Co-supervisor: D. Fullerton, Undergraduate Co-op student at TRIUMF 2015
  Project: Mass dependence of the valence cluster expansion
- Co-supervisor: L. Kemmler, DAAD RISE Internship at TRIUMF (10 weeks) 2015
  Project: Eigenvalues of a Hermitian matrix by a canonical transformation
- TRIUMF Postdoc Lecture Series 2015
  Developed and gave 6 one-hour lectures on the nuclear shell model at the graduate level. Class size approximately 10, ranging from undergraduate to postdoc.
- Expert facilitator at TRIUMF Summer Institute 2015
  Helped students in exercises and led a demonstration of a shell model calculation
- Teaching assistant: Advanced lab for senior-level physics majors at MSU 2011
  Experiments included NMR, optical pumping, sonoluminescence, cavendish balance, radioactivity detectors, superconductivity, and superfluidity. I added to the course material a theoretical description of bubble trapping for sonoluminescence and a γ-γ coincidence measurement to the radioactivity lab.

Honors, Awards, and Funding

- Department of Energy grant DE-FG02-97ER-41014, with G.A. Miller (PI), S. Bean, A. Bulgac, 2020-2023
- Alfred J. and Ruth Zeits Fellow 2013
- US Delegate to Lindau Nobel Laureate Meeting 2012
- MSU College of Natural Science Fellow 2009-2010
- NSCL Fellow 2009-2014
- Departmental Citation, Nuclear Engineering (top graduating senior) UC Berkeley 2009
- Phi Beta Kappa 2009

Service

- Referee for Physical Review Letters, Physical Review C, European Physical Journal A, Canadian Journal of Physics, International Journal of Modern Physics E
- Organizer: INT Workshop, Renormalization Group Approaches to the Many-Body Problem, 2020
- Organizer: UW Nuclear Theory Group Seminars, 2018-present
- Organizer: Seminars at INT series, 2019-present
- Chair: TRIUMF Grad Student and Postdoc Society 2016
- Vice-Chair: TRIUMF Grad Student and Postdoc Society 2015, 2016
- Organizer: TRIUMF theory department journal club 2015
- Co-organizer: TRIUMF postdoc nuclear physics journal club 2016
- Instructor for Physics of Atomic Nuclei, NSCL 2013 – Led high school physics teachers in a nuclear physics experiment
- Volunteer: Adopt-a-Physicist, organized by APS – answered physics questions from high school physics students over a three week period (4 sessions) 2012-2015

Presentations

Invited

- *Nuclear short-range correlations part II: quenching, correlations and currents from an ab initio perspective*
  FRIB TA Nuclear Physics Dilogues (remote), 2020
- *E pluribus unum: Connecting physics across the nuclear chart with ab initio theory*
  Argonne Physics Division Seminar (remote), 2020
- *Can we do all of nuclear physics ab initio?*
  UK Lockdown Seminar Series (remote), 2020
- *Theory relevant to experiments at FRIB with the S800 and GRETINA: Ab initio prospects and perspectives*
  FRIB First Experiments Proposal Preparation Workshop (remote), 2020
- *Taming the beast, or how a systematic approach to nuclear structure can help us learn some cool physics*
  TRIUMF Colloquium, Vancouver BC, 2019
- *Prospects for ab initio calculations of lead*
  Gordon Research Conference, Colby Sawyer College, NH 2019
- *A modern makeover for the shell model*
  LLNL Seminar, Livermore, CA 2019
- *Beta decay with the valence space IMSRG*
  Precise beta decay calculations for searches for new physics, ECT*, Trento Italy, 2019
- *A modern makeover for the shell model*
  NCSU Physics Colloquium, Raleigh, NC 2019
- *Confronting precise calculations with electromagnetic observables*
  Nuclear Structure 2018, East Lansing MI
- *Observables in medium mass nuclei: what can we learn?*
  New Ideas in Constraining Nuclear Forces, ECT*, Trento Italy, 2018

- *Recent progress towards constructing the nuclear shell model from first principles*
  Research Seminar, Florida State University, 2017
- *Nuclear Structure Theory*
  FRIB Day 1 Science Workshop, Argonne IL, 2017
- *Open-shell medium-mass nuclei with ab initio theory*
  ARIS meeting, Keystone CO, 2017
- *Nuclear physics from the ground up*
  Reed College physics colloquium, Portland OR, 2017
- *Can the shell model be truly ab initio?*
  ESNT workshop, Saclay France, 2017
- *Valence Space IM-SRG - present challenges and new developments*
  JINPA Workshop Oak Ridge, TN, 2016
- *Ab initio treatment of collective observables*
  Nuclear Physics Seminar, TRIUMF 2016
- *The shell model as an ab initio tool*
  Nuclear Physics Seminar, TRIUMF 2016
- *Single-particle structure of Si isotopes approaching* ^{42}*Si*
  NSCL Research Discussion, East Lansing, MI 2014
- *Single-particle structure of Si isotopes approaching* ^{42}*Si*
  Gordon Research Seminar, Colby-Sawyer College 2013

Contributed

- *IMSRG with flowing 3-body operators: some first explorations*
  Progress in Ab Initio Techniques in Nuclear Physics, TRIUMF, Vancouver BC, March 2020
- *Double beta decay with the valence-space IMSRG: an update*
  Double beta decay collaboration meeting, Chapel Hill, NC, 2019
- *Towards ab initio calculations of lead*
  INT workshop Nuclear Structure at the Crossroads, Seattle, WA 2019
- *Ab initio* $0\nu\beta\beta$ *matrix elements from the valence-space IMSRG*
  APS Division of Nuclear Physics, Pittsburgh PA, 2017
- *Ab initio treatment of fully open-shell medium-mass nuclei with the IM-SRG*
  APS Division of Nuclar Physics, Vancouver BC, 2016
- *The shell model as an ab initio tool*
  Nuclear Physics from Lattice QCD, INT Seattle, WA, 2016
- *Ab-initio effective interactions and operators from IM-SRG*
  Double Beta Decay Workshop, TRIUMF 2016
- *The shell model as an ab initio tool*
  Workshop on Progress in Ab Initio Techniques in Nuclear Theory, TRIUMF 2016
- *Shell model effective operators from IM-SRG*
  APS Division of Nuclear Physics, Santa Fe NM 2015
- *Valence space interactions and effective operators with In-Medium SRG*
  Advisory Committee on TRIUMF meeting 2015
- *Ab-initio calculations of open-shell medium-mass nuclei using IM-SRG with the shell model*
  TRIUMF Theory Seminar 2014
- *Valence-space effective operators with In-Medium SRG*
  International Collaborations in Nuclear Theory Workshop Michigan State University 2015
- *Valence-space effective operators with In-Medium SRG*
  Progress in Ab Initio Techniques in Nuclear Physics, TRIUMF 2015
- *Single-particle structure of Si isotopes approaching* ^{42}*Si*
  APS Division of Nuclear Physics, New Port News VA 2013
- *Single-particle structure of Si isotopes approaching* ^{42}*Si*
  Gordon Research Conference, Colby-Sawyer College 2013 (Poster)
- *In-beam* γ*-ray Spectroscopy of* $^{43-46}$*Cl*
  APS Division of Nuclear Physics, Newport Beach CA 2012
- *Digital Pulse Shape Analysis for Improved Doppler Reconstruction with SeGA*
  SORMA West, Oakland CA 2012 (Poster)

- *Probing Single-Particle Structure of Exotic Nuclei with Knockout Reactions*
  Exotic Beam Summer School, Michigan State University 2011 (Poster)
- *Temporal Variation of Cosmic Ray Muon Flux*
  CEU, APS Division of Nuclear Physics, Oakland CA 2009 (Poster)

Full Publication List

In Progress

1. *Converged ab initio calculations of heavy nuclei*
   T. Miyagi, **S. R. Stroberg**, P. Navrátil, K. Hebeler, and J. D. Holt, arXiv:2104.04688
2. *Consistent shell model spectroscopic factors*
   S. R. Stroberg and H. Zhang , in prep.
3. *Coulomb excitation of the $|T_z|=\frac{1}{2}$, A=23 mirror pair and systematics of ab-initio $E2$ strength*
   J. Henderson, G. Hackman, P. Ruotsalainen, J. D. Holt, **S. R. Stroberg**, et al., arXiv:2005.03796

Published

Pure theory

4. *Ab initio limits of atomic nuclei*
   S. R. Stroberg, J. D. Holt, A. Schwenk, and J. Simonis, Phys. Rev. Lett. 126 022501 (2021) *Editor's Suggestion*, *Featured in Physics*
5. *Ab initio neutrinoless $\beta\beta$ decay matrix elements for ^{48}Ca ^{76}Ge and ^{82}Se*
   A. Belley, C. G. Payne, **S. R. Stroberg**, J. D. Holt, T. Miyagi, Phys. Rev. Lett. 126 042502 (2021)
6. *Ab initio benchmarks of neutrinoless double beta decay in light nuclei with a chiral Hamiltonian*
   J. M. Yao, A. Belley, R. Wirth, T. Miyagi, C. G. Payne, **S. R. Stroberg**, H. Hergert, J. D. Holt, Phys. Rev. C 103 014315 (2021)
7. *Testing isospin symmetry breaking in ab initio nuclear theory*
   M. S. Martin, **S. R. Stroberg**, J. D. Holt, and K. G. Leach, accepted Phys. Rev. C, arXiv:2101.11826
8. *Examination of the inversion of isobaric-analogue states in nuclei*
   J. Henderson and **S. R. Stroberg**, Phys. Rev. C 102, 031303(R) (2020)
9. *Ab initio calculations of low-energy nuclear scattering using a generalized Lüscher method*
   X. Zhang, **S. R. Stroberg**, P. Navrátil, Chan Gwak, J. A. Melendez, R. J. Furnstahl, and J. D. Holt, Phys. Rev. Lett. 125, 112503 (2020)
10. *Ab initio multi-shell valence-space Hamiltonians*
    T. Miyagi, **S. R. Stroberg**, J. D. Holt, and N. Shimizu, Phys. Rev. C 102, 034320 (2020) *Editor's Suggestion*
11. *Non-empirical interactions for the nuclear shell model: an update*
    S. R. Stroberg, H. Hergert, S. K. Bogner,J. D. Holt, Ann. Rev. of Nucl. Part. Sci. 69, 307 (2019)
12. *Discrepancy between experimental and theoretical β-decay rates resolved from first principles*
    P. Gysbers, G. Hagen, J. D. Holt, G. R. Jansen, T. D. Morris, P .Navrátil, T. Papenbrock, S. Quaglioni, A. Schwenk, **S. R. Stroberg**, and K. A. Wendt, Nature Physics 15, 428 (2019)
13. *Ground-state properties of doubly magic nuclei from the unitary-model-operator approach with the chiral two- and three-nucleon forces*
    T. Miyagi, T. Abe, M. Kohno, P. Navrátil, R. Okamoto, T. Otsuka, N. Shimizu, **S. R. Stroberg**, Phys. Rev. C 100, 034310 (2019)
14. *Structure of the lightest tin isotopes*
    T. D. Morris, J. Simonis, **S. R. Stroberg**, C. Stumpf, G. Hagen, J. D. Holt, G. R. Jansen, T. Papenbrock, R. Roth, and A. Schwenk, Phys. Rev. Lett. 120, 152503 (2018) *Editor's Suggestion*

15. *Ab initio electromagnetic transitions with the in-medium similarity renormalization group*
N. Parzuchowski, **S. R. Stroberg**, H. Hergert, P. Navrátil, Phys. Rev. C 96, 034324 (2017)
16. *Saturation with chiral interactions and consequences for finite nuclei*
J. Simonis, **S. R. Stroberg**, J. D. Holt, and A. Schwenk, Phys. Rev. C 96 014303 (2017)
17. *Light axial vectors, nuclear transitions, and the ^{8}Be anomaly*
J. Kozaczuk, D.E. Morrissey, and **S. R. Stroberg** , Phys. Rev. D 95, 115024 (2017)
18. *A nucleus-dependent valence-space approach to nuclear structure*
S. R. Stroberg, A. Calci, H. Hergert, J. D. Holt, S. K. Bogner, R. Roth, A. Schwenk, Phys. Rev. Lett. 118, 032502 (2017)
19. *Ground and excited states of fully open-shell nuclei from ab initio in-medium SRG*
S. R. Stroberg, H. Hergert, J. D. Holt, S. K. Bogner, and A. Schwenk, Phys. Rev. C 93, 051301(R) (2016)

Experiment+theory (as a theorist)

20. *Spectroscopy of ^{33}Mg with knockout reactions*
D. Bazin, et al., accepted Phys. Rev. C arXiv:2101.12182
21. *Shell evolution of $N = 40$ isotones towards ^{60}Ca: First spectroscopy of ^{62}Ti*
M. L. Cortés, et al., Phys. Lett. B 800, 135071 (2020)
22. *^{78}Ni revealed as a doubly magic stronghold against nuclear deformation*
R. Taniuchi, Nature 569 53 (2019)
23. *Isospin symmetry in $B(E2)$ values: Coulomb excitation study of ^{21}Mg*
P. Ruotsalainen, et. al, Phys. Rev. C 99, 051301(R) (2019)
24. *Masses of neutron-rich $^{53-54}$Sc and ^{54,56}Ti nuclides: The $N = 32$ shell closure in scandium*
X. Xu, et al., Phys Rev C 99, 064303 (2019)
25. *High-resolution (p, t) reaction measurements as spectroscopic tests of ab-initio theory in the mid pf-shell*
K. G. Leach, J. D. Holt, P. E. Garrett, **S. R. Stroberg** et al., Phys. Rev. C 100, 014320 (2019)
26. *Observation of excited states in ^{20}Mg sheds light on nuclear forces and shell evolution*
J. S. Radhawa et al., Phys. Rev. C 99, 021301(R) (2019)
27. *Neutron skin and signature of the N=14 shell gap found from measured proton radii of $^{17-22}$N*
S. Bagchi, R. Kanungo, W. Horiuchi, G. Hagen, T. D. Morris, **S. R. Stroberg**, T. Suzuki, et al., Phys. Lett. B 790, 251 (2019)
28. *How robust is the $N = 34$ shell closure? First spectroscopy of ^{52}Ar*
H. N. Liu et al., Phys. Rev. Lett. 122, 072502 (2019)
29. *Isospin symmetry in $B(E2)$ values: Coulomb excitation study of ^{21}Mg*
P. Ruotsalainen et al., Phys. Rev. C 99, 051301(R) (2019)
30. *Testing microscopically derived descriptions of nuclear collectivity: Coulomb excitation of ^{22}Mg*
J. Henderson, G. Hackman, P. Ruotsalainen, **S. R. Stroberg**, K. D. Launey, J. D. Holt, et al., Phys. Lett. B 782, 468 (2018)
31. *Identification of significant $E0$ strength in the $2_2^+ \rightarrow 2_1^+$ transitions of ^{58,60,62}Ni*
L. J. Evitts et al., Phys. Lett. B 779, 396 (2018)
32. *Precision mass measurements of $^{58-63}$Cr: nuclear collectivity towards the $N = 40$ island of inversion*
M. Mougeot et al., Phys. Rev. Lett. 120, 232501 (2018)
33. *Dawning of the $N = 32$ shell closure seen through precision mass measurements of neutron-rich titanium isotopes*
E. Leistenschneider et al., Phys. Rev. Lett. 120, 062503 (2018)
34. *Precision mass measurements of neutron-rich Co isotopes beyond $N = 40$*
C. Izzo et al. , Phys. Rev. C 97, 014309 (2018)

35. *Lifetime measurement of the 2_1^+ state in ^{74}Rb and isospin properties of quadrupole transition strengths at $N = Z$*
C. Morse et al. , Phys. Lett. B 787, 198 (2018)
36. *Nuclear structure studied with direct reactions for fundamental symmetry tests*
P. E. Garrett et al. , Act. Phys. Pol. B 49, 229 (2018)
37. *Neutron knockout from $^{68,70}Ni$ ground and isomeric states*
F. Recchia et al., J. Phys. Conf. Ser. 966 012048 (2018)
38. *Structure of ^{55}Sc and development of the $N = 34$ subshell closure*
D. Steppenbeck et al., Phys. Rev. C 96 064310 (2017)
39. *Precision mass measurements of $^{125-127}Cd$ isotopes and isomers approaching the N-82 closed shell*
D. Lascar et al., Phys. Rev. C 96, 044323 (2017)
40. *Effective proton-neutron interaction near the drip line from unbound states in $^{25,26}F$*
M. Vandebrouck, A. Lapailleur, O. Sorlin, T. Aumann, C. Caesar, M. Holl, V. Panin, F. Wamers, **S. R. Stroberg**, J. D. Holt, F. de Oliveira Santos, et al., Phys. Rev. C 96, 054305 (2017)
41. *High-precision Q_{EC}-value measurement of the superallowed β^+ emitter ^{22}Mg and an evaluation of the A=22 isobaric triplet*
M. Reiter, K. G. Leach, O. M. Drozdowski, **S. R. Stroberg**, J. D. Holt et al., Phys. Rev. C 96, 052501(R) (2017)
42. *Precision mass measurements of magnesium isotopes and implications on the validity of the Isobaric Mass Multiplet Equation*
M. Brodeur et al., Phys. Rev. C 96, 034316 (2017)
43. *Spectroscopy of ^{50}Sc and ab initio calculations of $B(M3)$ strengths*
A. B. Garnsworthy, M. Bowry, B. Olaizola, J. D. Holt, S. R. Stroberg et al., Phys. Rev. C 96 044329 (2017)
44. *Searching for 0^+ states in ^{50}Cr: Implications for the superallowed β decay of ^{50}Mn*
K. G. Leach, P. E. Garrett, G. C. Ball, P. C. Bender, V. Bildstein, B. A. Brown, C. Burbadge, T. Faestermann, B. Hadinia, J. D. Holt, A. T. Laffoley, D. S. Jamieson, B. Jigmeddorj, A. J. Radich, E. T. Rand, **S. R. Stroberg**, C. E. Svensson, I. S. Towner, and H.-F. Wirth , Phys. Rev. C 94, 011304(R) (2016)
45. *Radii and binding energies in oxygen isotopes: A challenge for nuclear forces*
V. Lapoux, V. Somà, C. Barbieri, H. Hergert, J. D. Holt, **S. R. Stroberg** , Phys. Rev. Lett. 117 052501 (2016)

Experiment (as an experimentalist)

46. *Structure of ^{30}Mg explored via in-beam γ-ray spectroscopy*
N. Kitamura et al., accepted Phys. Rev. C (2020), arXiv:2010.06252
47. *Structure of ^{33}Si and the magicity of the $N = 20$ gap at $Z = 14$*
S. Jongile et al., Phys. Rev. C 102, 024321 (2020)
48. *Unexpected distribution of ν1f7/2 strength in ^{49}Ca*
H. L. Crawford et al., Phys. Rev. C 95, 064317 (2017)
49. *Low-lying level structure of ^{56}Cu and its implications on the rp process*
W.-J. Ong et al., Phys. Rev. C 95, 055806 (2017)
50. *Isomeric Character of the Lowest Observed 4^+ State in ^{44}S*
J. J. Parker IV, et al., Phys. Rev. Lett 118, 052501 (2017)
51. *Strongly coupled rotational band in ^{33}Mg*
A. L. Richard et al., Phys. Rev. C 96, 011303(R) (2017)
52. *Measurement of key resonance states for the $^{30}P(p,\gamma)^{31}S$ reaction rate, and the production of intermediate-mass elements in nova explosions*
A. Kankainen et al., Phys. Lett. B 769, 549 (2017)
53. *Particle-γ coincidence spectroscopy of the N=90 nucleus ^{154}Gd by $(b,t\gamma)$*
J. M. Allmond et al., Eur. Phys. J A 53, 62 (2017)

54. *In-beam spectroscopy of $^{38-42}S$*
E. Lunderberg, A. Gade, V. Bader, T. Baugher, D. Bazin, J.S. Berryman, B.A. Brown, D.J. Hartley, F. Recchia, **S.R. Stroberg**, D. Weisshaar, and K. Wimmer, Phys Rev C. 94, 064327 (2016)

55. *Neutron single-particle strengths at N = 40, 42: Neutron knockout from $^{68,70}Ni$ ground and isomeric states*
F. Recchia et. al, Phys Rev C. 94, 054324 (2016)

56. *A proton density bubble in the doubly magic ^{34}Si nucleus*
A. Mutschler, A. Lemasson,O. Sorlin, D. Bazin, C. Borcea, R. Borcea, Z. Dombrádi, J.-P. Ebran, A. Gade, H. Iwasaki, E. Khan, A. Lepailleur, F. Recchia, T. Roger, F. Rotaru, D. Sohler, M. Stanoiu, **S. R. Stroberg**, J. A. Tostevin, M. Vandebrouck, D. Weisshaar and K. Wimmer, Nature Physics 13, 152 (2016)

57. *Isospin Symmetry at High Spin Studied via Nucleon Knockout from Isomeric States*
S. A Milne, M. A. Bentley, E. C. Simpson, T. Baugher, D. Bazin, J. S. Berryman, A. M. Bruce, P. J. Davies, C. Aa. Diget, A. Gade, T. W. Henry, H. Iwasaki, A. Lemasson, S. M. Lenzi, S. McDaniel, D. R. Napoli, A. J. Nichols, A. Ratkiewicz, L. Scruton, **S. R. Stroberg**, J. A. Tostevin, D. Weisshaar, K. Wimmer, and R. Winkler, Phys. Rev. Lett. 117, 082502 (2016)

58. *Single-particle structure at N=29: The structure of ^{47}Ar and first spectroscopy of ^{45}S*
A. Gade, J. A. Tostevin, V. Bader, T. Baugher, D. Bazin, J. S. Berryman, B. A. Brown, C. Aa. Diget, T. Glasmacher, D. J. Hartley, E. Lunderberg, **S. R. Stroberg**, F. Recchia, A. Ratkiewicz, D. Weisshaar, and K. Wimmer, Phys. Rev. C 93, 054315 (2016)

59. *Spectroscopy of ^{35}P using the one-proton knockout reaction*
A. Mutschler, O. Sorlin, A. Lemasson, D. Bazin, C. Borcea, R. Borcea, A. Gade, H. Iwasaki, E. Khan, A. Lepailleur, F. Recchia, T. Roger, F. Rotaru, M. Stanoiu, **S. R. Stroberg**, J. A. Tostevin, M. Vandebrouck, D. Weisshaar, and K. Wimmer, Phys. Rev. C 93, 034333 (2016)

60. *Rotational band structure in ^{32}Mg*
H. L. Crawford et al. , Phys. Rev. C 93, 031303(R) (2016)

61. *One-neutron pickup into ^{46}Ca: Bound neutron $g_{9/2}$ spectroscopic strength at N=29*
A. Gade, J. A. Tostevin, V. Bader, T. Baugher, D. Bazin, J. S. Berryman, B. A. Brown, D. J. Hartley, E. Lunderberg, F. Recchia, **S. R. Stroberg**, Y. Utsuno, D. Weisshaar, and K. Wimmer, Phys. Rev. C 93, 031601(R) (2016)

62. *Mirrored one-nucleon knockout reactions to the Tz=±32 A=53 mirror nuclei*
S. A. Milne, M. A. Bentley, E. C. Simpson, P. Dodsworth, T. Baugher, D. Bazin, J. S. Berryman, A. M. Bruce, P. J. Davies, C. Aa. Diget, A. Gade, T. W. Henry, H. Iwasaki, A. Lemasson, S. M. Lenzi, S. McDaniel, D. R. Napoli, A. J. Nichols, A. Ratkiewicz, L. Scruton, **S. R. Stroberg**, J. A. Tostevin, D. Weisshaar, K. Wimmer, and R. Winkler, Phys. Rev. C 93, 024318 (2016)

63. *Isospin Symmetry at High Spin Studied via Nucleon Knockout from Isomeric States*
S. A. Milne, M. A. Bentley, E. C. Simpson, T. Baugher, D. Bazin, J. S. Berryman, A. M. Bruce, P. J. Davies, C. Aa. Diget, A. Gade, T. W. Henry, H. Iwasaki, A. Lemasson, S. M. Lenzi, S. McDaniel, D. R. Napoli, A. J. Nichols, A. Ratkiewicz, L. Scruton, **S. R. Stroberg**, J. A. Tostevin, D. Weisshaar, K. Wimmer, and R. Winkler , Phys. Rev. Lett. 117, 082502 (2016)

64. *Structure of Sn107 studied through single-neutron knockout reactions*
G. Cerizza, A. Ayres, K. L. Jones, R. Grzywacz, A. Bey, C. Bingham, L. Cartegni, D. Miller, S. Padgett, T. Baugher, D. Bazin, J. S. Berryman, A. Gade, S. McDaniel, A. Ratkiewicz, A. Shore, **S. R. Stroberg**, D. Weisshaar, K. Wimmer, R. Winkler, S. D. Pain, K. Y. Chae, J. A. Cizewski, M. E. Howard, and J. A. Tostevin, Phys. Rev. C 93, 021601(R) (2016)

65. *In-beam γ-ray spectroscopy of ^{63}Mn*
T. Baugher, A. Gade, R. V. F. Janssens, S. M. Lenzi, D. Bazin, M. P. Carpenter, C. J. Chiara, A. N. Deacon, S. J. Freeman, G. F. Grinyer, C. R. Hoffman, B. P. Kay, F. G. Kondev, T. Lauritsen, E. M. Lunderberg, S. McDaniel, K. C. Meierbachtol, A. Ratkiewicz, **S. R. Stroberg**, K. A. Walsh, D. Weisshaar, and S. Zhu, Phys. Rev. C 93, 014313 (2016)

66. *Lifetime measurement of the 4_1^+ state of ^{58}Ni with the recoild distance method*
C. Loelius et al., Phys. Rev. C 94, 024340 (2016)

67. *Angle-integrated measurements of the $^{26}Al(d,n)^{27}Si$ reaction cross section: a probe of spectroscopic factors and astrophysical resonance strengths*
A. Kankainen et al., Eur. Phys. J A52, 6 (2016)

68. *Neutron single-particle strength in silicon isotopes: Constraining the driving forces of shell evolution*
S. R. Stroberg, A. Gade, J. A. Tostevin, V. M. Bader, T. Baugher, D. Bazin, J. S. Berryman, B. A. Brown, C. M. Campbell, K. W. Kemper, C. Langer, E. Lunderberg, A. Lemasson, S. Noji, T. Otsuka, F. Recchia, C. Walz, D. Weisshaar, and S. Williams , Phys. Rev. C 91, 041302(R) (2015)

69. *Magnetic response of the halo nucleus ^{19}C studied via lifetime measurement*
K. Whitmore, D. Smalley, H. Iwasaki, T. Suzuki, V. M. Bader, D. Bazin, J. S. Berryman, B. A. Brown, C. M. Campbell, P. Fallon, A. Gade, C. Langer, A. Lemasson, C. Loelius, A. O. Macchiavelli, C. Morse, T. Otsuka, J. Parker, F. Recchia, **S. R. Stroberg**, D. Weisshaar, and K. Wimmer, Phys. Rev. C 91, 041303(R) (2015)

70. *Lifetime measurements of ^{17}C excited states and three-body and continuum effects*
D. Smalley, H. Iwasaki, P. Navrátil, R. Roth, J. Langhammer, V. M. Bader, D. Bazin, J. S. Berryman, C. M. Campbell, J. Dohet-Eraly, P. Fallon, A. Gade, C. Langer, A. Lemasson, C. Loelius, A. O. Macchiavelli, C. Morse, J. Parker, S. Quaglioni, F. Recchia, **S. R. Stroberg**, D. Weisshaar, K. Whitmore, and K. Wimmer, Phys. Rev. C 92, 064314 (2015)

71. *Spectroscopy of Na28: Shell evolution toward the drip line*
A. Lepailleur et al., Phys. Rev. C 92, 054309 (2015)

72. *Reduced transition strengths of low-lying yrast states in chromium isotopes in the vicinity of N=40*
T. Braunroth et al., Phys. Rev. C 92, 034306 (2015)

73. *Gamow-Teller transitions to ^{45}Ca via the $^{45}Sc(t,^3He+\gamma)$ reaction at 115 MeV/u and its application to stellar electron-capture rates*
S. Noji et al., Phys. Rev. C 92, 024312 (2015)

74. *Identification of deformed intruder states in semi-magic ^{70}Ni*
C. J. Chiara et al., Phys. Rev. C 91, 044309 (2015)

75. *Triplet energy differences and the low lying structure of ^{62}Ga*
T. W. Henry et al., Phys. Rev. C 92, 024315 (2015)

76. *Spectroscopy and lifetime measurements in ^{66}Ge,^{69}Se, and ^{65}Ga using fragmentation reactions*
A. J. Nichols, R. Wadsworth, M. A. Bentley, P. J. Davies, J. Henderson, D. G. Jenkins, I. Paterson, H. Iwasaki, A. Lemasson, V. M. Bader, T. Baugher, D. Bazin, J. S. Berryman, A. Gade, C. Morse, **S. R. Stroberg**, D. Weisshaar, K. Whitmore, K. Wimmer, G. de Angelis, A. Dewald, T. Braunroth, C. Fransen, M. Hackstein, and D. Miller, Phys. Rev. C 91, 014319 (2015)

77. *Single-particle structure of silicon isotopes approaching ^{42}Si*
S. R. Stroberg, A. Gade, J. A. Tostevin, V. M. Bader, T. Baugher, D. Bazin, J. S. Berryman, B. A. Brown, C. M. Campbell, K. W. Kemper, C. Langer, E. Lunderberg, A. Lemasson, S. Noji, F. Recchia, C. Walz, D. Weisshaar, and S. J. Williams, Phys. Rev. C 90, 034301 (2014)

78. *Nuclear Structure Towards N=40 ^{60}Ca: In-Beam γ-Ray Spectroscopy of $^{58,60}Ti$*
A. Gade et al., Phys. Rev. Lett. 112, 112503 (2014)

79. *Elastic breakup cross sections of well-bound nucleons*
K. Wimmer, D. Bazin, A. Gade, J. A. Tostevin, T. Baugher, Z. Chajecki, D. Coupland, M. A. Famiano, T. K. Ghosh, G. F. Grinyer, M. E. Howard, M. Kilburn, W. G. Lynch, B. Manning, K. Meierbachtol, P. Quarterman, A. Ratkiewicz, A. Sanetullaev, R. H. Showalter, **S. R. Stroberg**, M. B. Tsang, D. Weisshaar, J. Winkelbauer, R. Winkler, and M. Youngs, Phys. Rev. C 90, 064615 (2014)

80. *Lifetime measurements of the yrast 8^+ and 9^+ states in ^{70}As*
C. Morse, H. Iwasaki, A. Lemasson, T. Baugher, D. Bazin, J. S. Berryman, A. Dewald, C. Fransen, A. Gade, S. McDaniel, A. J. Nichols, A. Ratkiewicz, **S. R. Stroberg**, P. Voss, R. Wadsworth, D. Weisshaar, K. Wimmer, and R. Winkler, Phys. Rev. C 90, 034310 (2014)

81. *β^+ Gamow-Teller Transition Strengths from ^{46}Ti and Stellar Electron-Capture Rates*
S. Noji et al., Phys. Rev. Lett. 112, 252501 (2014)

82. *Determining the rp-Process Flow through ^{56}Ni: Resonances in $^{57}Cu(p,\gamma)^{58}Zn$ Identified with GRETINA*
C. Langer et al., Phys. Rev. Lett. 113, 032502 (2014)

83. *Evolution of Collectivity in ^{72}Kr: Evidence for Rapid Shape Transition*
H. Iwasaki, A. Lemasson, C. Morse, A. Dewald, T. Braunroth, V. M. Bader, T. Baugher, D. Bazin, J. S. Berryman, C. M. Campbell, A. Gade, C. Langer, I. Y. Lee, C. Loelius, E. Lunderberg, F. Recchia, D. Smalley, **S. R. Stroberg**, R. Wadsworth, C. Walz, D. Weisshaar, A. Westerberg, K. Whitmore, and K. Wimmer, Phys. Rev. Lett. 112, 142502 (2014)

84. *Quadrupole Transition Strength in the ^{74}Ni Nucleus and Core Polarization Effects in the Neutron-Rich Ni Isotopes*
T. Marchi et al., Phys. Rev. Lett. 113, 182501 (2014)

85. *Collectivity of light Ge and As isotopes*
A. Corsi, J.-P. Delaroche, A. Obertelli, T. Baugher, D. Bazin, S. Boissinot, F. Flavigny, A. Gade, M. Girod, T. Glasmacher, G. F. Grinyer, W. Korten, J. Libert, J. Ljungvall, S. McDaniel, A. Ratkiewicz, A. Signoracci, **R. Stroberg**, B. Sulignano, and D. Weisshaar, Phys. Rev. C 88 044311 (2013)

86. *Configuration Mixing and relative transition rates between low-spin states in ^{68}Ni*
F. Recchia *et. al*, Phys. Rev. C 88 041302 (2013)

87. *Quadrupole collectivity in neutron-deficient Sn nuclei: ^{104}Sn and the role of proton excitations*
V. M. Bader, A. Gade, D. Weisshaar, B. A. Brown, T. Baugher, D. Bazin, J. S. Berryman, A. Ekström, M. Hjorth-Jensen, **S. R. Stroberg**, W. B. Walters, K. Wimmer, and R. Winkler, Phys. Rev. C 88 051301 (2013)

88. *Mirror Energy Differences at Large Isospin Studied through Direct Two-Nucleon Knockout*
P. J. Davies, M. A. Bentley, T. W. Henry, E. C. Simpson, A. Gade, S. M. Lenzi, T. Baugher, D. Bazin, J. S. Berryman, A. M. Bruce, C. Aa. Diget, H. Iwasaki, A. Lemasson, S. McDaniel, D. R. Napoli, A. Ratkiewicz, L. Scruton, A. Shore, **R. Stroberg**, J. A. Tostevin, D. Weisshaar, K. Wimmer, and R. Winkler, Phys. Rev. Lett. 111, 072501 (2013)

89. *In-beam γ-ray Spectroscopy of $^{43-46}Cl$*
S. R. Stroberg, A. Gade, T. Baugher, D. Bazin, B. A. Brown, J. M. Cook, T. Glasmacher, G. F. Grinyer, S. McDaniel, A. Ratkiewicz, and D. Weisshaar, Phys. Rev. C 86, 024321 (2012)

90. *Correlations in Intermediate Energy Two-Proton Removal Reactions*
K. Wimmer, D. Bazin, A. Gade, J. A. Tostevin, T. Baugher, Z. Chajecki, D. Coupland, M. A. Famiano, T. K. Ghosh, G. F. Grinyer, R. Hodges, M. E. Howard, M. Kilburn, W. G. Lynch, B. Manning, K. Meierbachtol, P. Quarterman, A. Ratkiewicz, A. Sanetullaev, E. C. Simpson, **S. R. Stroberg**, M. B. Tsang, D. Weisshaar, J. Winkelbauer, R. Winkler, and M. Youngs, Phys. Rev. Lett. 109, 202505 (2012)

91. *Probing elastic and inelastic breakup contributions to intermediate-energy two-proton removal reactions*
K. Wimmer, D. Bazin, A. Gade, J. A. Tostevin, T. Baugher, Z. Chajecki, D. Coupland, M. A. Famiano, T. K. Ghosh, G. F. Grinyer, R. Hodges, M. E. Howard, M. Kilburn, W. G. Lynch, B. Manning, K. Meierbachtol, P. Quarterman, A. Ratkiewicz, A. Sanetullaev, **S. R. Stroberg**, M. B. Tsang, D. Weisshaar, J. Winkelbauer, R. Winkler, and M. Youngs, Phys. Rev. C 85, 051603 (2012)

92. *Observation of mutually enhanced collectivity in self-conjugate* $^{76}_{36}Sr_{36}$
A. Lemasson, H. Iwasaki, C. Morse, D. Bazin, T. Baugher, J. S. Berryman, A. Dewald, C. Fransen, A. Gade, S. McDaniel, A. Nichols, A. Ratkiewicz, **S. R. Stroberg**, P. Voss, R. Wadsworth, D. Weisshaar, K. Wimmer, and R. Winkler, Phys. Rev. C 85, 041303 (2012)

93. *Probing Configuration Mixing in* ^{12}B *with Gamow-Teller Transition Strengths*
R. Meharchand, R. G. T. Zegers, B.A. Brown, Sam M. Austin, T. Baugher, D. Bazin, J. Deaven, A. Gade, G. F. Grinyer, C. J. Guess, M. E. Howard, H. Iwasaki, S. McDaniel, K. Meierbachtol, G. Perdikakis, J. Pereira, A. M. Prinke, A. Ratkiewicz, A. Signoracci **S. R. Stroberg**, L. Valdez, P. Voss, K. A. Walsh, D. Weisshaar, and R. Winkler, Phys. Rev. Lett. 108, 122501 (2012)

94. *Inverse-kinematics one-neutron pickup with fast rare-isotope beams*
A. Gade, J. A. Tostevin, T. Baugher, D. Bazin, B. A. Brown, C. M. Campbell, T. Glasmacher, G. F. Grinyer, S. McDaniel, K. Meierbachtol, A. Ratkiewicz, **S. R. Stroberg**, K. A. Walsh, D. Weisshaar, and R. Winkler, Phys. Rev. C 83, 054324 (2011)

95. *Particle-*γ *spectroscopy of the (p,d-*γ*)*^{155}Gd *reaction: Neutron single-quasiparticle states at N=91*
J. M. Allmond, C. W. Beausang, J. O. Rasmussen, T. J. Ross, M. S. Basunia, L. A. Bernstein, D. L. Bleuel, W. Brooks, N. Brown, J. T. Burke, B. K. Darakchieva, K. R. Dudziak, K. E. Evans, P. Fallon, H. B. Jeppesen, J. D. LeBlanc, S. R. Lesher, M. A. McMahan, D. A. Meyer, L. Phair, N. D. Scielzo, **S. R. Stroberg**, and M. Wiedeking, Phys. Rev. C 81, 064316 (2010)

96. *Collectivity at N=40 in neutron-rich* ^{64}Cr
A. Gade, R. V. F. Janssens, T. Baugher, D. Bazin, B. A. Brown, M. P. Carpenter, C. J. Chiara, A. N. Deacon, S. J. Freeman, G. F. Grinyer, C. R. Hoffman, B. P. Kay, F. G. Kondev, T. Lauritsen, S. McDaniel, K. Meierbachtol, A. Ratkiewicz, **S. R. Stroberg**, K. A. Walsh, D. Weisshaar, R. Winkler, and S. Zhu, Phys. Rev. C 81, 051304 (2010)

97. *Indirect determination of the* $^{230}Th(n,f)$ *and* $^{231}Th(n,f)$ *cross sections for thorium-based nuclear energy systems*
B. L. Goldblum, **S. R. Stroberg**, J. M. Allmond, C. Angell, L. A. Bernstein, D. L. Bleuel, J. T. Burke, J. Gibelin, L. Phair, N. D. Scielzo, E. Swanberg, M. Wiedeking, and E. B. Norman, Phys. Rev. C 80, 044610 (2009)