Patrick D. O'Malley

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EDUCATION:

Bachelors of Science in Physics, Tennessee Technological University (May 2006)
GPA: 3.96

Ph. D. in Physics and Astronomy, Rutgers University (May 2012)
Dissertation topic: Low energy nuclear physics reactions with astrophysically significant motivations, primarily in the synthesis of various isotopes in the universe.
GPA: 3.7

EXPERIENCE:

- **Research Experience for Undergraduates (Indiana University Bloomington, Summer 2004)**
  - Using the C programming language, implemented a new algorithm to identify neutrino events in Super Kamiokande.

- **Research Experience for Undergraduates (Triangle Universities Nuclear Laboratory, Summer 2005)**
  - Measurement of neutron-deuteron analyzing power at 22.5 MeV. This involved the understanding and setup of several liquid scintillator neutron detectors, running the van de Graaff accelerator during the experiment, and analyzing the data

- **Graduate Research Assistant: (September 2006-March 2012)**
  - ^{15}N(d,p)^{16}N reaction in inverse kinematics at the Holifield Radioactive Ion Beam Facility (HRIBF) and Oak Ridge National Laboratory (ORNL) to determine the spectroscopic factors in low lying ^{16}N states to aid in understanding of s-process nucleosynthesis. Focused on the analysis and careful calibration of silicon strip charged particle detectors.

  - ^{75}As(d,pγ)^{76}As experiment at HRIBF in ORNL to determine whether (d,pγ) will serve as a surrogate for (n,γ). Primarily responsible for setup, calibration, and analysis of germanium gamma ray detectors.

  - ^{20}Ne(p,d) in normal kinematics at the HRIBF in ORNL as it might impact the characterization of delayed gamma emission from novae. Measurement used a neon implanted target and a proton

beam. Co-PI for this experiment so responsibilities included optimization of experimental setup, analysis, and development of improvements for future efforts.

- Worked on the creation of the neutron plastic scintillator array VANDLE (Versatile Array of Neutron Detectors at Low Energy). Created and tested the position sensitive neutron detectors

- ^{7}Be(d,d)^{7}Be in inverse kinematics using a thick target technique to search for possible resonant enhancement of ^{7}Be+d to potentially explain ^{7}Li abundance mystery in Big Bang Nucleosynthesis.

- **DOE NNSA SSGF Practicuum at Lawrence Livermore National Laboratory (Summer 2009)**
  - Development and testing of neutron Time Projection Chamber for the purpose of detecting and locating special nuclear materials. Optimized analysis code (written in C++ and using ROOT) and pointing accuracy of detector

- **Colorado School of Mines (CSM), Postdoctoral Researcher (April 2012-January 2014**
  - Development of a beam tracking detector for the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University (MSU) involving the creation and testing of a multi-wire drift chamber
  - Participation in various nuclear-astrophysics experiments at the Detector of Recoils and Gammas Of Nuclear reactions (DRAGON) at the TRIUMF facility in Vancouver, British Columbia
  - Mentoring an undergraduate senior student on development of a neutron detecting Time Projection Chamber for use in astrophysical measurements

- **University of Notre Dame, Postdoctoral Researcher (January 2014-January 2018)**
  - Led development of SSNAP, a silicon charged particle detector array to be used as a helical spectrometer within *TwinSol* (a pair of coupled superconducting solenoids), using a C++ Monte Carlo to simulate data and determine detector design, as well as initiate tests with various detector types

  - Led development of a position-sensitive ion chamber coupled to a plastic scintillator phoswitch

  - Trained as an operator of the FN tandem particle accelerator

  - Leading development of new radioactive ion beams using *TwinSol*, including upgrade of the production target chamber to an oscillating multi-cell chamber and variable diameter aperture

- Led efforts to measure ^{17}F(d,n) reaction using a combination of deuterated-liquid scintillators and VANDLE, an array of plastic scintillators to determine the spectroscopic strengths of low-lying states in ^{18}Ne and study how they impact the delayed gamma emission from novae

- Performed various high-precision half-life measurements (^{10}C, ^{17}F, ^{15}O, ^{25}Al, ^{26m}Al) using the *TwinSol* Separator.

- Setup high-efficiency silicon-strip charged particle detector array and ran ^{17}F(p,α) measurement to understand a possible breakout reaction of the HCNO cycle and rp-process in X-ray bursts

- Active participation in JENSA collaboration, the gas-jet target in the ReA3 hall of the NSCL at MSU, including experimental setup, data collection, and analysis discussion

- Aiding efforts to measure ^{12}C(α,γ) using an array of LaBr and Nai gamma ray detectors and an implanted ^{12}C target

- Lead the upgrade of the RHINO windowless gas target
  - will lead efforts to use RHINO to directly measure ^{20}Ne(α,p) at astrophysical energies

- **University of Notre Dame, Assistant Professor of Research (January 2018-present)**
  - Leading in the addition of another superconducting solenoid to upgrade of *TwinSol* to TriSol

  - Responsible for training graduate students on accelerator operations

  - Assisting in maintenance of FN tandem accelerator and ion source

  - Lead many experiments to determine half-lives via high precision beta decay measurements of various nuclei (^{10,11}C,^{13}N, ^{15}O, ^{17,18}F, ^{25,26,28}Al, ^{29}P)

  - Development of the St. Benedict beta decay trap

  - Teaching in PAN summer schools dedicated to exciting children between ages 8 and 16 about science

<u>AWARDS:</u>

- **Undergraduate:**
  - University Academic Service scholarship (August 2002-May 2006)
  - Algood and Elizabeth Carlen Scholarship (August 2003-May 2006)
  - Who's Who Among College Students (May 2003-current)

- Sigma Pi Sigma (August 2004-current)
- Physics Award (TTU award for academic excellence in physics) (May 2006)
- Derry Berry Award Finalist (Award for academic excellence and university impact, May 2006)
- Summa cum laude in cursu honorum (May 2006)

- **Graduate:**
  - Department of Energy National Nuclear Security Administration Stewardship Science Graduate Fellowship (DOE NNSA SSGF) (September 2008-March 2012)

STUDENTS/POSTDOCS MENTORED:

- **Postdocs:**
  - Jun Hu, UND postdoc, (March 2015 – March 2016)
  - Davi da Silva Monteiro (June 2016-May 2019)

- **Graduate students:**
  - Ryan Braid, CSM graduate student (March 2012-January 2014)
  - Keri Kuhn, CSM graduate student (March 2012-January 2014)
  - Matthew Hall, UND graduate student (May 2014-May 2019)
  - Oscar Hall, University of Surrey (February 2015-December 2015)
  - Jacob Long, UND graduate student (May 2015-present)
  - Jacob Allen, UND graduate student (October 2015-present)
  - Samual Henderson, UND graduate student (October 2015-present)
  - Drew Blankstein, UND (Summer 2016-Present)
  - Scott Carmichael, UND graduate student (January 2019 - present)
  - Matthew Baines, University of Surrey (February 2019-December 2019)

- **Summer Students/Undergraduates:**
  - William Boeschenstein (Summer 2015)
  - Benjamin Becker (Summer 2015)
  - Ricky Leblanc (Summer 2016)
  - Scott Carmichael (Summer 2016)
  - Benjamin Shadid (Summer 2016)
  - Daniel GalvaoGuerra (Summer 2016 – present)
  - Chris Brady (Summer 2016 – present)

WORKSHOPS/SCHOOLS:

- Exotic Beam Summer School (Argonne National Laboratory, August 4-9, 2008)
- Euroschool on Exotic Beams (Leuven Belgium, September 4-11, 2009)
- Exotic Beam Summer School (Oak Ridge National Laboratory, August 2-6, 2010)
- Facility for Rare Isotope Beams (FRIB) detector development workshop (Rutgers University, January 6-7, 2011)
- GEANT4 workshop (March 7-11, 2011)

- Gordon Nuclear Chemistry Conference (June 12-17, 2011)
- Nuclear Physics of the Next Generation (London, September 11-15, 2018)

PRESENTATIONS:

- **Talks:**
  - "Spectroscopic Factors of ^{16}N," Annual Meeting of the Division of Nuclear Physics of the American Physics Society, (October 23-26, 2008)
  - "Neutron Time Projection Chamber," Annual Meeting of the Division of Nuclear Physics of the American Physics Society (October 13-17, 2009)
  - "Development of a Neutron Time Projection Chamber," Euroschool on Exotic Beams (September 4-11, 2009)
  - "^{20}Ne and the ^{18}F mystery," The Annual Meeting of the Division of Nuclear Physics of the American Physics Society, (November 2-6, 2010)
  - "Search for Resonant enhancement of the ^{7}Be+d as a possible solution to the ^{7}Li abundance discrepancy," Stockpile Stewardship Academic Alliance Meeting at Lawrence Livermore National Laboratory (May 23-24, 2011), **Invited talk**
  - "Search for Resonant enhancement of the ^{7}Be+d as a possible solution to the ^{7}Li abundance discrepancy," Annual Meeting of the Division of Nuclear Physics of the American Physics Society (October 26-28, 2011)
  - "Nuclear Reactions and Nucleosynthesis," Argonne National Laboratory weekly seminar (February 16, 2012), **Invited talk**
  - "Nuclear Physics Reactions of Astrophysical Importance", National Nuclear Security Administration Stewardship Science Graduate Fellowship annual meeting, (July 27, 2012), **Invited Talk**
  - "Search for Resonant enhancement of the ^{7}Be+d as a possible solution to the ^{7}Li abundance discrepancy," Annual Meeting of the Division of Nuclear Physics of the American Physics Society Mini-Symposium on Nuclear Astrophysics in Cosmology (October 27, 2012)
  - "Search for Resonant enhancement of the ^{7}Be+d," Lawrence Livermore National Laboratory seminar (6/17/13) **Invited Talk**
  - "Nuclear Physics Reactions of Astrophysical Importance," Los Alamos National Laboratory seminar (7/9/13) **Invited Talk**
  - "Nuclear Physics Reactions of Astrophysical Importance," Nuclear Science Laboratory seminar at the University of Notre Dame (10/3/13) **Invited Talk**
  - "Cross Section Measurements for the ^{34}S(α, γ) reaction" Annual Meeting of the Division of Nuclear Physics of the American Physics Society (October 10, 2014)
  - "Centering *TwinSo*l: Future Prospects," Stockpile Stewardship Academic Alliance Meeting at Lawrence Livermore National Laboratory (March 16-17, 2015), **Invited talk**
  - "Spectroscopic Strengths of low-lying levels in ^{18}Ne," APS Prairie

Meeting (November 11, 2015)

- "Spectroscopic Strengths of low-lying levels in ^{18}Ne, preliminary results," Annual Meeting of the Division of Nuclear Physics of the American Physics Society (October 14, 2016)
- "Construction of the Solenoid Spectrometer for Nuclear AstroPhysics (SSNAP) at Notre Dame," ReA6 Solenoid Workshop (March, 24, 2017) **Invited Talk**
- "Spectroscopic Strengths of low-lying levels in ^{18}Ne," Annual Meeting of the Division of Nuclear Physics of the American Physics Society (October 26, 2018)
- "Nuclear Astrophysics Beyond RIBSS," Symposium on Radioactive Ion Beam Studies for Stewardship Science and Applications (June 21, 2018) **Invited Talk**
- "Spectroscopic Strengths of low-lying levels in ^{18}Ne," Conference on Application of Accelerators in Research and Industry (August 15, 2018), **Invited Talk**
- "Don't Reinvent the Wheel," Nuclear Physics for the Next Generation (September 12, 2018), **Invited talk**

- **Posters:**
  - "Single/Multi ring event identifier for Super Kamiokande," Annual Meeting of the Division of Nuclear Physics of the American Physics Society, Conference Experience for Undergraduates, (October 28-31, 2004)
  - Stockpile Stewardship Academic Alliance Meeting, Los Alamos National Laboratory (Fall 2006)
  - "Spectroscopic strengths of low lying states in ^{16}N" Stewardship Science Academic Alliance symposium (February, 26-28 2008)
  - "Future study of low lying states in ^{80}Ge," Stockpile Stewardship Academic Alliance, Lawrence Livermore National Laboratory (Spring 2008)
  - "Neutron Time Projection Chamber," Department of Energy National Nuclear Security Administration Stewardship Science Graduate Fellowship Annual Meeting (July 13-16, 2009)
  - "Development of a Neutron Time Projection Chamber," Euroschool on Exotic Beams (Leuven Belgium, September 4-11, 2009)
  - "Development of a Neutron Time Projection Chamber," Stockpile Stewardship Academic Alliance Meeting, Los Alamos National Laboratory (October 29, 2009)
  - "Future study of low lying states in ^{80}Ge," The VI International Workshop on Direct Reactions with Exotic Beams (December 16-19, 2009)
  - "Future study of low lying states in ^{80}Ge," Stewardship Science Academic Alliance symposium (January 20-22, 2010)
  - "^{20}Ne and the ^{18}F mystery, preliminary results" Department of Energy National Nuclear Security Administration Stewardship Science Graduate Fellowship Annual Meeting (June 21-22, 2010)

- "Novae and ^{19}Ne," Exotic Beam Summer School (August 2-6, 2010)
- "^{20}Ne and the ^{18}F mystery," Stockpile Stewardship Academic Alliance, Los Alamos National Laboratory (Fall 2010)
- "Astrophysically important nuclear physics measurements," Stockpile Stewardship Academic Alliance Meeting at Lawrence Livermore National Laboratory (May 23-24, 2011),
- "^{7}Be+d reaction and the ^{7}Li abundance mystery," Gordon Nuclear Chemistry Conference (June 12-17, 2011
- "*TwinSol*: Cleaning up LE RIB production at Notre Dame," International Conference on Electromagnetic Isotope Separators and Related Topics, (May 11 – 15, 2015)
- "Putting some SSNAP into TwinSol," Stewardship Science Academic Alliance annual meeting (April 12, 2017)
- "Recent Upgrades to TwinSol," Advances in Radioactive Isotope Science (May 30, 2017)
- "Nuclear Physics with TwinSol," Radiation Measurements and Applications, SORMA (June 12, 2018)
- "Testing the Weak Interaction using St. Benedict at the University of Notre Dame," Electromagnetic Isotope Separators and Related Topics {EMIS} (September 19, 2018)

PUBLICATIONS: (bold titles for listing as first author or primary co-author)**:**

1. "Single ring vs. multiple ring determination of Super Kamiokande," Patrick O'Malley, Mark Messier, Bull. Am. Phys. Soc. October, 2004

2. "Single neutron transfer experiments close to the r-process line," K.L. Jones, C. Baktash, D.W. Bardayan, J.C. Blackmon, W.N. Catford, J.A. Cizewski, R. P. Fitzger- ald, U. Greife, C.J. Gross, M.S. Johnson, R.L. Kozub, J.F. Liang, R.J. Livesay, Z. Ma, B.H. Moazen, C.D. Nesara ja, D. Shapira, M.S. Smith, J.S. Thomas, D. Visser, *Acta Physica Polonica B* **38** (4) (2007) 1205

3. **"Spectroscopic Factors of low-lying ^{16}N levels**," D. W. Bardayan, P. D. O'Malley, J. C. Blackmon, K. Y. Chae, K. A. Chipps,J. A. Cizewski, R. Hatarik, K. L. Jones, R. L. Kozub, C. Matei, B. H. Moazen, C. D. Nesaraja, S. D. Pain, S. Paulauskas, W. A. Peters, S. T. Pittman, K. T. Schmitt, J. F. Shriner, Jr., and M. S. Smith Physical Review C, vol. 78, Issue 5, id. 052801 11/2008

4. "Constraint on the astrophysical ^{18}Ne(α,p)^{21}Na reaction rate through a ^{24}Mg(p,t)^{22}Mg measurement," K.Y. Chae, D.W. Bardayan, J.C. Blackmon, K.A. Chipps, R. Hatarik, R.L. Kozub, C. Matei, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, S.D. Pain, S.T. Pittman, M.S. Smith, Phys. Rev. C 79, 055804-1-5 (2009).

5. "The ^{28}Si(p,t)^{26}Si reaction and the implications for astrophysical ^{25}Al(p,g)^{26}Si reaction rate," K.A. Chipps, D.W. Bardayan, K.Y. Chae, J.A. Cizewski, R.L.

Kozub, J.F. Liang, C. Matei, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, S.D. Pain, W.A. Peters, S.T. Pittman, K.T. Schmitt, and M.S. Smith, Phys. Rev. C 82, 045803 (2010)

6. "Spin assignments to excited states in ^{22}Na through a ^{24}Mg(p,^{3}He)^{22}Na reaction measurement," K.Y. Chae, D.W. Bardayan, J.C. Blackmon, B.H. Moazen, K.A. Chipps, R. Hatarik, K.L. Jones, R.L. Kozub, J.F. Liang, C.D. Nesaraja, P.D. O'Malley, C. Matei, S.D. Pain, S.T. Pittman, M.S. Smith, Phys. Rev. C 82, 047302 (2010)

7. "Benchmarking a surrogate reaction for neutron capture," R. Hatarik, L.A. Bernstein, J.A. Cizewski, D.L. Bleuel, J.T. Burke, J.E. Escher, J. Gibelin, B.L. Goldblum, A.M. Hatarik, S.R. Lesher, P.D. O'Malley, L.Phair, E. Rodriguez-Vieitez, T. Swan, and M. Wiedeking, Phys. Rev. C 81, 011602 (2010)

8. "Proton decay of ^{26}Si via the ^{28}Si(p,t)^{26}Si Reaction and Implications for ^{25}Al(p,Y)^{26}Si," K. Chipps, D.W. Bardayan, K.Y. Chae, J. Cizewski, R.L. Kozub, J.F. Liang, C. Matei, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, S.D. Pain, W.A. Peters, S.T. Pittman, K.T. Schmitt and M.S. Smith, Proceedings of Science, NIC XI, 205 (2011)

9. "A new technique for measuring astrophysically important (α,p) reactions," K.Y. Chae, S.H. Ahn, A. Ayres, D.W. Bardayan, A. Bey, M.E. Howard, K.L. Jones, R.L. Kozub, M. Matos, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, W.A. Peters, S.T. Pittman and M.S. Smith, Proceedings of Science, NIC XI, 217 (2011)

10. "Neutron spectroscopic factors of ^{34}Ar and ^{46}Ar from (p,d) transfer reactions," Jenny Lee, M.B. Tsang, D. Bazin, D. Coupland, V. Henzl, D. Henzlova, M. Kilburn, W.G. Lynch, A.M. Rogers, A. Sanetullaev, A. Signoracci, Z.Y. Sun, M. Youngs, R.J. Charity, L.G. Sobotka, M. Famiano, S. Hudan, D. Shapira, P. O'Malley, W.A. Peters, K.Y. Chae, K. Schmitt, Phys. Rev. C 83, 014606 (2011)

11. "Direct studies of low-energy resonances in ^{31}P(p,α)^{28}Si and ^{35}Cl(p, α)^{32}S," B. H. Moazen, C. Matei, D. W. Bardayan, J. C. Blackmon, K. Y. Chae, K. A. Chipps, R. Hatarik, K. L. Jones, R. L. Kozub, M. Matos, C. D. Nesaraja, P. D. O'Malley, S. D. Pain, T. Pelham, W. A. Peters, S. T. Pittman, J. F. Shriner, Jr., and M. S. Smith, Eur. Phys. J. A 47, 66 (2011)

12. "**Search for a resonant enhancement of the ^{7}Be+d reaction and primordial ^{7}Li abundances**," P. D. O'Malley, D. W. Bardayan, A. S. Adekola, S. Ahn, K. Y. Chae, J. A. Cizewski, S. Graves, M. E. Howard, K. L. Jones, R. L. Kozub, L. Lindhardt, M. Matos, B. M. Moazen, C. D. Nesaraja, S. D. Pain, W. A. Peters, S. T. Pittman, K. T. Schmitt, J. F. Shriner, Jr., M. S. Smith, I. Spassova, S. Y. Strauss, and J. L. Wheeler, Phys. Rev. C 84, 042801 (2011)

13. "Unbound states of ^{32}Cl and the ^{31}S(p,γ)^{32}Cl reaction rate," M. Matoš, J. C. Blackmon, L. E. Linhardt, D. W. Bardayan, C. D. Nesaraja, J. A. Clark, C. M. Deibel, P. D. O'Malley, and P. D. Parker Phys. Rev. C 84, 055806 (2011)

14. "Nuclear Structure Near the *N*=50 Shell Closure," M. E. Howard, A.S. Adekola, J.A. Cizewski, B. Manning, E. Merino, P. D. O'Malley, L. J. Schradin, D. Bazin, Z. Chajecki, D. Coupland, T. K. Ghosh, R. Hodges, J. Lee, W. Lynch, A. Sanetullaev, M. B. Tsang, J. Winkelbauer, M. Youngs, R.R.C. Clement, M. Matos, D. W. Bardayan, K. Y. Chae, D. Shapira, S. H. Ahn, K. Schmitt, and M. A. Famiano, CAARI2012 Proceedings (2012)

15. "^{28}Si(p,^{3}He) reaction for spectroscopy of ^{26}Al," K. A. Chipps, D. W. Bardayan, K. Y. Chae, J. A. Cizewski, R. L. Kozub, C. Matei, B. H. Moazen, C. D. Nesaraja, P. D. O'Malley, S. D. Pain, W. A. Peters, S. T. Pittman, K. T. Schmitt, and M. S. Smith
Phys. Rev. C 86, 014329 (2012)

16. "^{26}Al+p elastic and inelastic scattering reactions and galactic abundances of ^{26}Al," S. T. Pittman, D. W. Bardayan, K. Y. Chae, K. A. Chipps, K. L. Jones, R. L. Kozub, C. Matei, M. Matos, B. H. Moazen, C. D. Nesaraja, P. D. O'Malley, S. D. Pain, P. D. Parker, W. A. Peters, J. F. Shriner, Jr., and M. S. Smith, Phys. Rev. C 85 065804 (2012)

17. "Development of the SuperORRUBA detector array and the measurement of single particle states in ^{81}Ge," S. Ahn, A.S. Adekola, D.W. Bardayan, J.C. Blackman, K.Y. Chae, K.A. Chipps, J.A. Cizewski, J. Elson, S. Hardy, M.E. Howard, K.L. Jones, R.L. Kozub, B. Manning, M. Matos, C.D. Nesaraja, P.D. O'Malley, S.D. Pain, W.A. Peters, S.T. Pittman, B.C. Rasco, M.S. Smith, L.G. Sobotka, I. Spassova, CAARI2012 Proceedings (2012)

18. "Transient Field g factor and mean-life measurements with a rare isotope beam of ^{126}Sn," G.J. Kumbartzki, N. Benczer-Koller, D.A. Torres, B. Manning, P.D. O'Malley, Y.Y. Sharon, L. Zamick, C.J. Gross, D.C. Radford, S.J.Q. Robinson, J.M. Allmond, A.E. Stuchbery, K.H. Speidel, N.J. Stone, C.R. Bingham, Phys. Rev. C 86 034319 (2012)

19. "Probing Single-Neutron Levels in ^{127,129}Sn via Transfer Reactions," B. Manning, J.A. Cizewski, M.E. Howard, P.D. O'Malley, and A. Ratkiewicz ICFN5 (Sanibel) Proceedings (2013)

20. "Transient field g factor and mean-life measurements with a rare isotope beam of ^{126}Sn," G. J. Kumbartzki, N. Benczer-Koller, D. A. Torres, B. Manning, P. D. O'Malley, Y. Y. Sharon, L. Zamick, C. J. Gross, D. C. Radford, S. J. Q. Robinson, J. M. Allmond, A. E. Stuchbery, K.-H. Speidel, N. J. Stone, and C. R. Bingham, Phys. Rev. C 86 034319 (2013)

21. "Reactions of a ^{10}Be beam on proton and deuteron targets" K. T. Schmitt, K. L. Jones, S. Ahn, D. W. Bardayan, A. Bey, J. C. Blackmon, S. M. Brown, K.

Y. Chae, K. A. Chipps, J. A. Cizewski, K. I. Hahn, J. J. Kolata, R. L. Kozub, J. F. Liang, C. Matei, M. Matos, D. Matyas, B. Moazen, C. D. Nesaraja, F. M. Nunes, P. D. O'Malley, S. D. Pain, W. A. Peters, S. T. Pittman, A. Roberts, D. Shapira, J. F. Shriner, Jr., M. S. Smith, I. Spassova, D. W. Stracener, N. J. Upadhyay, A. N. Villano, and G. L. Wilson, Phys. Rev. C 88 064612 (2013)

22. "Neutron-deuteron analyzing power data at E_N = 22.5 MeV", G.J. Weisel, W. Tornow, A.S. Crowell, J.H. Esterline, G.M. Hale, C.R. Howell, P.D. O'Malley, J.R. Tompkins, and H. Witala, Phys. Rev. C 89 054001 (2014)

23. "Constraint of the Astrophysical ^{26g}Al(p, γ)^{27}Si Destruction Rate at Stellar Temperatures" S. D. Pain, D. W. Bardayan, J. C. Blackmon, S. M. Brown, K. Y. Chae, K. A. Chipps, J. A. Cizewski, K. L. Jones, R. L. Kozub, J. F. Liang, C. Matei, M. Matos, B. H. Moazen, C. D. Nesaraja, J. Okołowicz, P. D. O'Malley, W. A. Peters, S. T. Pittman, M. Płoszajczak, K. T. Schmitt, J. F. Shriner, Jr., D. Shapira, M. S. Smith, D. W. Stracener, and G. L. Wilson, Phys. Rev. Lett. 114 212501 (2015)

24. "**Upgrades for the *TwinSol* facility**" P.D. O'Malley, D.W. Bardayan, J.J. Kolata, M. R. Hall, O. Hall, J. Allen, F.D. Becchetti, the *TwinSol* collaboration, NIM B. vol. 376, pgs. 417-419, (Jan 2016)

25. "The Prototype Active-Target Time-Projection Chamber used with *TwinSol* radioactive-ion beams." T. Ahn, D.W. Bardayan, D. Bazin, S. Bereiro Novo, F.D. Becchetti, J. Bradt, M. Brodeur, L. Carpenter, Z. Chajecki, M. Cortesi, A. Fritsch, M.R. Hall, O. Hall, J. Jensen, J.J. Kolata, W. Lynch, W. Mittig, P. O'Malley, D. Suzuki, NIM B. vol. 376 pgs. 321-325 (June 2016)

26. "Precision half-life measurement of ^{17}F"
M. Brodeur, C. Nicoloff, T. Ahn, J. Allen, D. W. Bardayan, F. D. Becchetti, Y. K. Gupta, M. R. Hall, O. Hall, J. Hu, J. M. Kelly, J. J. Kolata, J. Long, P. O'Malley, and B. E. Schultz Phys. Rev. C 93, 025503 (February 2016)

27. "Isospin Mixing Reveals ^{30}P(p,γ)^{31}S Resonance Influencing Nova Nucleosynthesis"
M.B. Bennett, C. Wrede, B.A. Brown, S.N. Liddick, D. Pérez-Loureiro, D.W. Bardayan, A.A. Chen, K.A. Chipps, C. Fry, B.E. Glassman, C. Langer, N.R. Larson, E.I. McNeice, Z. Meisel, W. Ong, P.D. O'Malley, S.D. Pain, C.J. Prokop, H. Schatz, S.B. Schwartz, S. Suchyta, P. Thompson, M. Walters, and X. Xu, Phys. Rev. Lett. 116, 102502 (March 2016)

28. "Isobaric multiplet mass equation in the A=31 T=3/2 quartets," M.B. Bennet, C. Wrede, B.A. Brown, S.N. Liddick, D. Perez-Loureiro, D.W. Bardayan, A.A. Chen, K.A. Chipps, C. Fry, B.E. Glassman, C. Langer, N.R. Larson, E.I. McNeice, Z. Meisel, W. Ong, P.D. O'Malley , S.D. Pain, C.J. Prokop, S.B. Schwartz, S. Suchyta, P. Thompson, M. Walters, X. Xu, Phys. Rev. C 93 064310 (June 2016)

29. "Recent Nuclear Astrophysics Measurements using the *TwinSol* Seperator," D.W. Bardayan, T. Ahn, J. Allen, F.D. Becchetti, J.C. Blackmon, M. Brodeur, B. Frentz, Y.L. Gupta, M.R. Hall, O. Hall, S. Henderson, J. Hu, J.M. Kelly, J.J. Kolata, A. Long, J. Long, K. Macon, C. Nicoloff, P.D. O'Malley, K. Ostdiek, S.D. Pain, J. Riggins, B.E. Schultz, M. Smith, S. Strauss, R. Torres-Isea, J. Phys. Conf. Ser. 730 012004 (July 2016)

30. "Performance of the Versatile Array of Neutron Detectors at Low Energy (VANDLE)," W.A. Peters, S. Ilyushkin, M. Madurga, C. Matei, S.V. Paulauskas, R.K. Grzywacz, D.W. Bardayan, C.R Brune, J. Allen, Z. Bergstrom, J. Blackmon, N.T. Brewer, J.A. Cizewski, P. Copp, M.E. Howard, R. Ikeyama, R.L. Kozub, B. Manning, T.N. Massey, M. Matos, E. Merino, P.D. O'Malley, F. Raiola, C.S Reingold, F. Sarazin, I. Spassova, S. Taylor, D. Walter, NIM A. vol 836 pgs. 122-133 (November 2016)

31. "Scattering of the Halo Nucleus ^{11}B on ^{197}Au at Energies around the Coulomb Barrier," V. Pesudo, M. J.G. Borge, A. M. Moro, J. A. Lay, E. Nácher, J. Gómez-Camacho, O. Tengblad, L. Acosta, M. Alcorta, M. A.G. Alvarez, C. Andreoiu, P. C. Bender, R. Braid, M. Cubero, A. Di Pietro, J. P. Fernández-García, P. Figuera, M. Fisichella, B. R. Fulton, A. B. Garnsworthy, G. Hackman, U. Hager, O. S. Kirsebom, K. Kuhn, M. Lattuada, G. Marquínez-Durán, I. Martel, D. Miller, M. Moukaddam, P. D. O'Malley, A. Perea, M. M. Rajabali, A. M. Sánchez-Benítez, F. Sarazin, V. Scuderi, C. E. Svensson, C. Unsworth, Z. M. Wang, Phys. Rev. Lett. 118 152502 (April 2017)

32. "First spin-parity constraint of the 306 keV resonance in ^{35}Cl or nova nucleosynthesis," K.A. Chipps, S.D. Pain, R. L. Kozub, D.W. Bardayan, J.A. Cizewski, K. Y. Chae, J.F. Liang, C. Matei, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, W.A. Peters, S.T. Pittman, K.T. Schmitt, M.S. Smith Phys. Rev. C 95 045808 (April 2017)

33. "Performance of the Versatile Array of Neutron Detectors at Low Energy (VANDLE)," W.A. Peters, S. Ilyushkin, M. Madurga, C. Matei, S.V. Paulauskas, R.K. Grzywacz, D.W. Bardayan, C.R Brune, J. Allen, Z. Bergstrom, J. Blackmon, N.T. Brewer, J.A. Cizewski, P. Copp, M.E. Howard, R. Ikeyama, R.L. Kozub, B. Manning, T.N. Massey, M. Matos, E. Merino, P.D. O'Malley, F. Raiola, C.S Reingold, F. Sarazin, I. Spassova, S. Taylor, D. Walter, NIM A. vol 836 pgs. 122-133 (November 2016)

34. "Scattering of the Halo Nucleus ^{11}B on ^{197}Au at Energies around the Coulomb Barrier," V. Pesudo, M. J.G. Borge, A. M. Moro, J. A. Lay, E. Nácher, J. Gómez-Camacho, O. Tengblad, L. Acosta, M. Alcorta, M. A.G. Alvarez, C. Andreoiu, P. C. Bender, R. Braid, M. Cubero, A. Di Pietro, J. P. Fernández-García, P. Figuera, M. Fisichella, B. R. Fulton, A. B. Garnsworthy, G. Hackman, U. Hager, O. S. Kirsebom, K. Kuhn, M. Lattuada, G. Marquínez-Durán, I. Martel, D. Miller, M. Moukaddam, P. D. O'Malley, A. Perea, M. M. Rajabali, A. M. Sánchez-Benítez, F. Sarazin, V. Scuderi, C. E. Svensson, C. Unsworth, Z. M. Wang, Phys. Rev. Lett. 118 152502 (April 2017)

35. "First spin-parity constraint of the 306 keV resonance in ^{35}Cl or nova nucleosynthesis," K.A. Chipps, S.D. Pain, R. L. Kozub, D.W. Bardayan, J.A. Cizewski, K. Y. Chae, J.F. Liang, C. Matei, B.H. Moazen, C.D. Nesaraja, P.D. O'Malley, W.A. Peters, S.T. Pittman, K.T. Schmitt, M.S. Smith Phys. Rev. C 95 045808 (April 2017)

36. "Precision half-life measurement of ^{11}C: The Most precise mirror transition ft-value" A.A Valverde, M. Brodeur, T. Ahn, J.M. Allen, D.W. Bardayan, F.D. Becchetti, D. Blankstein, G. Brown, D.P. Burdette, B. Frentz, G. Gilardy, M.R. Hall, S. King, J.J. Kolata, J. Long, K.T. Macon, A. Nelson, P.D. O'Malley, M. Skulsi, S.Y. Strauss, B. Vande Kolk, Phys Rev. C 97 035503 (March 2018)

37. "Doppler broadening in ^{20}Mg($\beta\rho$)^{19}Ne decay" B.E. Glassman, D. Perez-Loureiro, C. Wrede, J. Allen, D.W. Bardayan, M.B Bennett, K.A. Chipps, M. Febbraro, M. Friedmanm C. Fry, M.R. Hall, O. Hall, S.N. Liddick, P.D. O'Malley W.J. Ong, S.D. Pain, S.B. Schwartz, P. Shdiling, H. Sims, L.J. Sun, P. Thompson, H. Zhang, Phys. Rev. C. 99 065801 (June 2019)

38. "First Measurement of the B(E2: 3/2- to 1.2-) transition in ^{7}Be: Test ab initio predictions for A=7 nuclei" S.L. Henderson, T. Ahn. M.A. Caprio, P. Fasano, A.N. Simon, W. Tan, P.D. O'Malley, J. Allen, D.W. Bardayan, B. Frentz, M.R. Hall, J.J. Kolata, A.E. McCoy, S. Moy. lan, C.S. Reingold, S. Strauss, R. Torres-Isea, Phys. Rev. C 99 064320 (June 2019)

39. "**SSNAP: The Solenoid Spectrometer for Nuclear Astrophysics**" J. Allen, P.D. O'Malley, N. Applegate. D.W. Bardayan, D. Blankstein, M.R. Hall, O. Hall, J.J. Kolata, F.D. Becchetti, *TwinSol* collaboration , NIM A. Vol 954, 161350 (February 2020)

40. "First direct measurement of the ^{22}Mg(α,p) and implications for the X-ray burst model-observation comparison" J.S. Randhama, Y. Ayyad, W. Mittig, Z. Meisel, T. Ahn, S. Aguilar, H. Alvarez-Pol, D.W. Bardayan, D. Bazin, S. Beceiro-Novo, L. Carpenter, M. Cortesi, D. Cortina-Gil, D. Blanstein, P. Gastis, M. Hall, S. Henderson, J.J. Kolata, T. Mijatovic, F. Ndayisabye, P. O'Malley, J. Pereira, A. Pierre, H. Robert, C. Santamaria, H. Schatz, J. Smith, N. Watwood, J.C. Zamora . Accepted for publication Physical Review Letter (2020).