Alan-John (AJ) Mitchell, Ph.D.

Publications and presentations

Publications

Peer-reviewed journals

Publications marked by * are those in which I have made a significant contribution to either the development of the experiment or hardware, analysis and interpretation, or all of the above.

1. **'The X-Array and SATURN: A new decay-spectroscopy station for CARIBU'*. **A.J. Mitchell**, P.F. Bertone, B. DiGiovine, C.J. Lister M.P. Carpenter, P. Chowdhury, J.A. Clark, A.Y. Deo, F.G. Kondev, E.A. McCutchan, N. D'Olympia, J. Rohrer. G. Savard, D. Seweryniak, S. Zhu. **Nucl. Inst. and Meth. in Phys. Res. A 763 (2014) 232**.

2. **'Single-particle excitations in $^{113-125}$Sb from (α,t) and (^{3}He,d) reactions'*. **A.J. Mitchell**, S.J. Freeman, J.P. Schiffer, J.A. Clark, C.M. Deibel, C.R. Hoffman, A.M. Howard, B.P. Kay, P.D. Parker, D.K. Sharp and J.S. Thomas. **(in preparation)**.

3. *'Proton pair correlations and the neutrinoless double-β decay of ^{76}Ge'*. A. Roberts, A.M. Howard, J.J. Kolata, A.N. Villano, F.D. Becchetti, P.A. DeYoung, M. Febbraro, S.J. Freeman, B.P. Kay, S.A. McAllister, **A.J. Mitchell**, J.P. Schiffer, J.S. Thomas, and R.O. Torres-Isea. **Phys. Rev. C 87, (2013) 051305**.

4. *'Neutron single-particle strength outside the N = 50 core'*. D.K. Sharp, B.P. Kay, J.S. Thomas, S.J. Freeman, J.P. Schiffer, B.B. Back, S. Bedoor, T. Bloxham, J.A. Clark, C.M. Deibel, C.R. Hoffman, A.M. Howard, J.C. Lighthall, S.T. Marley, **A.J. Mitchell**, T. Otsuka, P.D. Parker, K.E. Rehm, D.V. Shetty, and A.H. Wuosmaa. **Phys. Rev. C 87, (2013) 014312 – Editor's Suggestion**.

5. *'Valence neutron properties relevant to the neutrinoless double-β decay of ^{130}Te'*. B.P. Kay, T. Bloxham, S.A. McAllister, J.A. Clark, C.M. Deibel, S.J. Freedman, S.J. Freeman, K. Han, A.M. Howard, **A.J. Mitchell**, P.D. Parker, J.P. Schiffer, D.K. Sharp, and J.S. Thomas. **Phys. Rev. C 87, (2013) 011302**.

6. *'Valence nucleon populations in the Ni isotopes'*. J.P. Schiffer, C.R. Hoffman, B.P. Kay, J.A. Clark, C.M. Deibel, S.J. Freeman, M.Honma, A. M. Howard, **A.J. Mitchell**, T. Otsuka, P.D. Parker, D.K. Sharp, and J.S. Thomas. **Phys. Rev. C 87, (2013) 034306**.

7. *'Neutron pair correlations in A = 100 nuclei involved in neutrinoless double-β decay'*. J.S. Thomas, S.J. Freeman, C.M. Deibel, T. Faestermann, R. Hertenberger, B.P. Kay, S.A. McAllister, **A.J. Mitchell**, J.P. Schiffer, D.K. Sharp, and H.-F. Wirth. **Phys. Rev. C 86, (2012) 047304**.

8. *'Test of Sum Rules in Nucleon Transfer Reactions'*. J.P. Schiffer, C.R. Hoffman, B.P. Kay, J.A. Clark, C.M. Deibel, S.J. Freeman, A.M. Howard, **A.J. Mitchell**, P.D. Parker, D.K. Sharp and J.S. Thomas. **Phys. Rev. Lett. 108, (2012) 022501**.

Conference Proceedings

1. **'First γ-decay Studies With CARIBU Low-Energy Exotic Beams'*. **A.J. Mitchell**, P.F. Bertone, B. DiGiovine, *et al*. **JPS Conf. Proc. Volume 6 (2015)**.

2. **'Investigating trends in proton single-particle states in Z = 51 isotopes using transfer reactions'*. **A.J. Mitchell**, S.J. Freeman, J.P. Schiffer, J.A. Clark, C.M. Deibel, C.R. Hoffman, A.M. Howard, B.P. Kay, P.D. Parker, D.K. Sharp and J.S. Thomas. **J. Phys. Conf. Ser. 381 (2012) 012099**.

3. *'Trends in the $g_{7/2}$ and $h_{11/2}$ neutron single-particle energies in N = 51 isotones'*. D.K. Sharp, B.P. Kay, S.J. Freeman, J.P. Schiffer, B.B. Back, T. Bloxham, J.A. Clark, C.M. Deibel, C.R. Hoffman, A.M. Howard, J.C. Lighthall, S.T. Marley, **A.J. Mitchell**, P.D. Parker, J.S. Thomas, and A.H. Wuosmaa. **J. Phys. Conf. Ser. 381 (2012) 012100**.

4. *'Constraining neutrinoless double β decay matrix elements in ^{130}Te.'*. S.A. McAllister, B.P. Kay, S.J. Freeman, J.P. Schiffer, C.M. Deibel, T. Bloxham, A.M. Howard, **A.J. Mitchell**, P.D. Parker, D.K. Sharp and J.S. Thomas. **J. Phys. Conf. Ser. 381 (2012) 012043**.

5. *'HELIOS - progress and possibilities'*. B.P. Kay, M. Alcorta, B.B. Back, S.I. Baker, S. Bedoor, T. Bloxham, J.A. Clark, C.M. Deibel, S.J. Freeman, C.R. Hoffman, A.M. Howard, J.C. Lighthall, S.T. Marley, **A.J. Mitchell**, K.E. Rehm, J.P. Schiffer, D.K. Sharp, D.V. Shetty, J.S. Thomas, A.H. Wuosmaa, and S.Zhu. **J. Phys. Conf. Ser. 381 (2012) 012095**.

Contributed oral presentations

International conferences

• 'First γ-decay studies with CARIBU low-energy beams'. *Advances in Radioactive Isotope Science 2014, University of Tokyo, Japan* (June 2014).

• 'Investigating trends in proton single-particle states in $Z = 51$ isotopes'. *Rutherford Centennial International Nuclear Physics Conference, The University of Manchester, UK* (July 2011).

National conferences and workshops

• 'The X-Array and Saturn: A new decay-spectroscopy station for CARIBU'. *ATLAS Users' Meeting, Argonne National Laboratory, IL* (May 2014).

• 'Commissioning of a new decay-detection array and tape transport station for CARIBU'. *APS Division of Nuclear Physics Fall Meeting, Newport News, VA* (October 2013).

• 'Decay spectroscopy at Argonne National Laboratory'. *Low-Energy Community Meeting, Michigan State University, MI* (August 2013).

• 'Evolving high-j single-particle energies: progress and possibilities'. *Institute of Physics Annual Nuclear Physics Conference, University of Brighton, UK* - **Invited talk** (April 2012).

• 'Investigating trends in proton single-particle states in Z = 51 isotopes'. *UK Nuclear Physics Summer School, University of St Andrews, UK* - **'Best Overall Presentation' prize** (September 2011).

• 'Investigating proton single-particle states in Z = 51 isotopes'. *Institute of Physics Annual Nuclear Physics Conference, University of Glasgow, UK* (April 2011).

Invited seminars

• 'Physics with low-energy CARIBU beams'. *Departmental Seminar, IFIC University of Valencia, Spain* (December 2014).

• 'Recent progress in radioactive-ion beam experiments at Argonne National Laboratory'. *Departmental Seminar, University of Surrey, UK* (December 2014).

• 'Physics with low-energy CARIBU beams'. *Nuclear Physics Seminar, University of Manchester, UK* (November 2014).

• 'Opportunities with radioactive beams at Argonne National Laboratory'. *Department Seminar, University of York, UK* (November 2014).

• 'Opportunities with CARIBU radioactive beams at Argonne National Laboratory'. *ANU Departmental Seminar, Australian National University, Australia* (March 2014).

Research seminars

• 'Decay spectroscopy at Argonne National Laboratory'. *Graduate seminar, University of Massachusetts Lowell, MA* (November 2013).

• 'Evolving high-j single-particle energies: progress and possibilities'. *Graduate seminar, University of Massachusetts Lowell, MA* (November 2012).

• 'A Tale of Two Cities: South Bend, IN and New Haven, CT'. *Graduate seminar, The University of Manchester, UK* (January 2012).

• 'Investigating trends in proton single-particle states in Z = 51 isotopes'. *Graduate seminar, The University of Manchester, UK* (November 2010).

Poster presentations

• 'Commissioning of a new decay station for CARIBU'. *Exotic Beam Summer School, Lawrence Berkeley National Laboratory, CA* (July 2013).

• 'Commissioning of a new decay-detection array and tape transport station for CARIBU'. *Gordon Research Conference, New London, NH* (June 2013).

• 'Investigating trends in proton single-particle energies in Z = 51 isotopes'. *Nuclear Structure 2012, Argonne National Laboratory, IL* (August 2012).

• 'Investigating proton single-particle energies in Z = 51 isotopes'. *Annual Graduate Student event, The University of Manchester, UK* (September 2011).