

**PUBLICATIONS**  
**ARTHUR B. McDONALD**

**Recent Presentations and Invited Talks**

**Colloquia (past 18 years) at:**

Los Alamos National Lab, UNAM Mexico City, U. Cagliari, ETH Zurich, Niels Bohr Institute, Dresden, Beijing, Chengdu, U.C. Irvine, U. Minnesota, Virginia Tech., Boston U., St. Mary's University, St. F. X. University, Lisbon, UBC, Boston U., Caltech, U. Alberta, Edmonton, U. Hawaii, Laurentian, Oxford, Uppsala, Berkeley, Carleton, Deep River, U. Wisconsin, Madison, York, Dresden, Alberta, Sussex, Oxford, Leeds, ICTP Trieste, Notre Dame, McGill, Acadia University, University of British Columbia, University of Hawaii, LIP Lisbon, University of Valencia, University of Chicago, Dalhousie University, Uppsala University, Michigan State University, Kansas State University, Oak Ridge National Laboratory, University of Montreal, University of Guelph, Perimeter Institute (Waterloo, Ontario), Joint Institute for Nuclear Research (Dubna, Russia), University of Milan, University of Heidelberg, University of Regina, Oxford University, Princeton University, Harvard University, Queen's University, Dalhousie University, California Institute of Technology, St. Mary's University, Columbia University, University of Waterloo, University of Indiana, McGill University, University of Alberta, CERN Laboratory in Geneva, University of Rochester, University of Toronto, Massachusetts Institute of Technology, Bartol Research Institute at University of Delaware, University of California at San Diego, Royal Military College, Case Western Reserve University, Brookhaven National Laboratory, University of Adelaide.

**Invited speaker (past 18 years) at:**

History of Neutrinos Paris, 2018; Neutrino 2018, Heidelberg; Public Lecture, Kingston, 2016; Smith Fest, Princeton, 2016; FISICA 2016, Braga, Portugal; Neutrino 2016, London; Canada House, London, 2016; Lindau Conference, Germany, 2016; Chengdu, China, 2016; IDEACITY, Toronto, 2016; CAP, Ottawa, 2016; CASCA, Winnipeg, 2016; APS, Salt Lake City, 2016; CIFAR Cosmology & Gravity, Whistler, BC, 2016; Canada 150, Halifax, 2016; NDTV, New Delhi, 2016; India Science Congress, Mysore, 2016; Science Policy Conference, Ottawa, 2015, 2016; Nobel Lecture, Stockholm, 2015; NuAtmospheres, London, 2015; Wright Lecture, Geneva, 2014; Paris, 2014, TRISEP, SNOLAB, 2014; Pontecorvo 100 Conference, Pisa, Italy, 2013, Director's Colloquium, Los Alamos National Lab, 2013, Carolina International Symposium on Neutrino Physics, 2013, Symposium on Perspectives on Neutrino Physics and Fundamental Symmetries, Seattle, 2013, Vernon Hughes Memorial Public Lecture, Yale University, 2012, Perimeter Institute, 2012, Neutrino 2012 Conference, Kyoto Japan, 2012, GWPI Distinguished Lecturer, University of Waterloo, 2011, Neutrino Telescopes, Venice, Italy, 2011; E. Segre Lecture, Berkeley, 2010; Erice Workshop on Neutrino Physics, Erice, Italy, 2009; WIN09, Perugia, Italy, 2009; Royal Society, London, 2009; Neutrino Telescopes, Venice, Italy, 2009; Huggins Science Lecturer, Acadia University, 2008; Vancouver Institute, 2008; Canadian Association of Physicists, Quebec City, 2008; Canadian Embassy, Tokyo, 2008; Institute for the Physics and Mathematics of the Universe, Tokyo, 2008; Erich Vogt Fest, 2008; TRIUMF Laboratory, Vancouver, 2008; Donald R. Hamilton Lecturer, Princeton University, 2008; Astro2007 Conference, Faro, Portugal, 2007; Neutrino Telescopes, Venice, 2007; H.A. Bethe Memorial Symposium, Cornell University, 2006; SNOW2006, Stockholm, Sweden, 2006; Helmut Baer Lecturer, University of Michigan, 2006; D.A. Bromley Memorial Symposium, Yale, 2005; J.N Bahcall Memorial Symposium, IAS, Princeton, 2005; E.W. Guptill Lecturer at Dalhousie University, 2005; Topics in Astroparticle and Underground Physics (TAUP2005), Zaragosa, Spain; Manne Siegbhan Lecturer, Stockholm University, Sweden, 2005; Atlantic Provinces Undergraduate Physics Conference, Halifax, 2005; Nobel Symposium on Neutrino Physics, Stockholm, Sweden, 2004; COSMO04 conference, Toronto, 2004; International Nuclear Physics Conference, Goteborg, Sweden, 2004; Welsh Lecturer at University of Toronto, 2004; Basterfield Lecturer at the University of Regina, 2004; UK-Canada Rutherford Lecture of

the Royal Society, 2003; Royal Astronomical Society, London, 2003; Royal Spanish Physical Society, Madrid, 2003; International Astronomical Union (2003), Sydney, Australia; American Physical Society, Washington, D.C., 2003; Neutrino Telescopes X (2003), Venice, Italy; Paliamo di Neutrini, Accademia dei Lincei (2003), Rome, Italy; Particles and Nuclei International Conference (PANIC2002), Osaka, Japan; Physics in Collision 2002, Stanford, California; ICFA2002 Conference, CERN, Geneva, Switzerland; MRST Conference in Theoretical Physics 2002, Perimeter Institute, Waterloo, Canada; European Physical Society High Energy Physics Conference 2001 in Budapest, Hungary; Conference on Neutrino Oscillations 2001, Venice, Italy; Conference on Theory, Astroparticle and Underground Physics 2001, Gran Sasso, Italy; American Physical Society Division of Nuclear Physics 2001, Hawaii; Neutrino 2000, Sudbury; Canadian Astronomical Society, Kingston; TEDCITY 2000, Toronto; Lake Louise Winter Institute on Particle Physics; Western Regional Nuclear Physics Conference, Banff; American Astronomical Society, Washington, D.C.; Canadian Undergraduate Physics Conferences at Queen's (also Dalhousie and University of Ottawa previously); Deep River Science Academy and the "Kingston 2000" Astrophysics Conference at the University of Toronto.

### **List of Publications**

- 1) NOBEL LECTURE: THE SUDBURY NEUTRINO OBSERVATORY: OBSERVATION OF FLAVOR CHANGE FOR SOLAR NEUTRINOS  
A. B. McDonald Rev. Mod. Phys. 88 030502 (2016)
- 2) CURRENT STATUS AND FUTURE PROSPECTS FOR THE SNO+ EXPERIMENT  
S. Andringa *et al* (SNO+ Collaboration) Advances in High Energy Physics, Volume 2016, Article ID 6194250 (2016)
- 3) RADON BACKGROUNDS IN THE DEAP-1 LIQUID ARGON-BASED DARK MATTER DETECTOR  
P.-A. Amaudruz, M. Batygov, B. Beltran, K. Boudjemline, M. G. Boulay B. Cai T. Caldwell, M. Chen, R. Chouinard, B. T. Cleveland, D. Contreras, K. Dering, F. Duncan, R. Ford, R. Gagnon F. Giuliani, M. Gold V. V. Golovko, P. Gorel, K. Graham, D. R. Grant, R. Hakobyan, A. L. Hallin, P. Harvey, C. Hearn, C. J. Jillings, M. Kuźniak, I. Lawson, O. Li, J. Lidgard, P. Liimatainen, W. H. Lippincott, R. Mathew, A. B. McDonald, T. McElroy, K. McFarlane, D. McKinsey, A. Muir, C. Nantais, K. Nicolics, J. Nikkel, T. Noble, E. O'Dwyer, K. S. Olsen, C. Ouellet, P. Pasuthip, T. Pollmann, W. Rau, F. Retiere, M. Ronquest, P. Skensved, T. Sonley, J. Tang, E. Vázquez-Jáuregui, L. Veloce, M. Ward, Astroparticle Physics 62, 178-194 (2015)
- 4) IMPROVING PHOTOELETRON COUNTING AND PARTICLE IDENTIFICATION IN SCINTILLATION IN SCINTILLATION DETECTORS WITH BAYSEAN TECHNIQUES  
M. Akashi-Ronquest, P. A. Amaudruz, M. Batygov, B. Beltran, M. Bodmer, M. G. Boulay, B. Broerman, B. Buck, A. Butcher, B. Cai, T. Caldwell, M. Chen, Y. Chen, B. Cleveland, K. Coakley, K. Dering, F. A. Duncan, J. A. Formaggio, R. Gagnon, D. Gastler, F. Giuliani, M. Gold, V. V. Golovko, P. Gorel, K. Graham, E. Grace, N. Guerrero, V. Guiseppe, A. L. Hallin, P. Harvey, C. Hearn, R. Henning, A. Hime, J. Hofgartner, S. Jaditz, C. J. Jillings, C. Kachulis, E. Kearns, J. Kelsey, J. R. Klein, M. Kuzniak, A. LaTorre, I. Lawson, O. Li, J. J. Lidgard, P. Liimatainen, S. Linden, K. McFarlane, D. N. McKinsey, S. MacMullin, A. Mastbaum, R. Mathew, A. B. McDonald, D. M. Mei, J. Monroe, A. Muir, C. Nantais, K. Nicolics, J. A. Nikkel, T. Noble, E. O'Dwyer, K. Olsen, G. D. Orebi Gann, C. Ouellet, K. Palladino, P. Pasuthip, G. Perumpilly, T. Pollmann, P. Rau, F. Retiere, K. Rielage, R. Schnee, S. Seibert, P. Skensved, T.

Sonley, E. Vazquez-Jauregui, L. Veloce, J. Walding, B. Wang, J. Wang, M. Ward, C. Zhang, *Astroparticle Physics*, Vol. 65, 01.05.2015, p. 40–54.

- 5) A SEARCH FOR ASTROPHYSICAL BURST SIGNALS AT THE SUDBURY NEUTRINO OBSERVATORY  
The SNO Collaboration (B. Aharmim *et al*) *Astroparticle Physics* 55, 1-7.
- 6) COMBINED ANALYSIS OF ALL THREE PHASES OF SOLAR NEUTRINO DATA FROM THE SUDBURY NEUTRINO OBSERVATORY  
The SNO Collaboration (B. Aharmim *et al*) *Phys. Rev. C* 88, 025501 (2013)
- 7) MEASUREMENT OF THE  $\nu_e$  AND TOTAL  $^8\text{B}$  NEUTRINO FLUXES WITH THE SUDBURY NEUTRINO OBSERVATORY PHASE-III DATA SET  
B. Aharmim, S. N. Ahmed, J. F. Amsbaugh, J. M. Anaya, A. E. Anthony, J. Banar, N. Barros, E. W. Beier, A. Bellerive, B. Beltran, M. Bergevin, S. D. Biller, K. Boudjemline, M. G. Boulay, T. J. Bowles, M. C. Browne, T. V. Bullard, T. H. Burritt, B. Cai, Y. D. Chan, D. Chauhan, M. Chen, B. T. Cleveland, G. A. Cox, C. A. Currat, X. Dai, H. Deng, J. A. Detwiler, M. DiMarco, P. J. Doe, G. Doucas, M. R. Dragowsky, P.-L. Drouin, C. A. Duba, F. A. Duncan, M. Dunford, E. D. Earle, S. R. Elliott, H. C. Evans, G. T. Ewan, J. Farine, H. Fergani, F. Fleurot, R. J. Ford, J. A. Formaggio, M. M. Fowler, N. Gagnon, J. V. Germani, A. Goldschmidt, J. T. M. Goon, K. Graham, E. Guillian, S. Habib R. L. Hahn, A. L. Hallin, E. D. Hallman, A. A. Hamian, G. C. Harper, P. J. Harvey, R. Hazama, K. M. Heeger, W. J. Heintzelman, J. Heise, R. L. Helmer, R. Henning, A. Hime, C. Howard, M. A. Howe, M. Huang, P. Jagam, B. Jamieson, N. A. Jelley, K. J. Keeter, J. R. Klein, L. L. Kormos, M. Kos, A. Kruger, C. Kraus, C. B. Krauss, T. Kutter, C. C. M. Kyba, R. Lange, J. Law, I. T. Lawson, K. T. Lesko, J. R. Leslie, J. C. Loach, R. MacLellan, S. Majerus, H. B. Mak, J. Maneira, R. Martin, N. McCauley, A. B. McDonald, S. R. McGee, C. Mifflin G. G. Miller, M. L. Miller, B. Monreal, J. Monroe, B. Morissette, A. W. Myers, B. G. Nickel, A. J. Noble, H. M. O'Keefe, N. S. Oblath, R. W. Ollerhead, G. D. Orebi Gann, S. M. Oser, R. A. Ott, S. J. M. Peeters, A. W.P. Poon, G. Prior, S. D. Reitzner, K. Rielage, B. C. Robertson, R. G. H. Robertson, E. Rollin, M. H. Schwendener, J. A. Secrest, S. R. Seibert, O. Simard, J. J. Simpson, P. Skensved, M. W. E. Smith, T. J. Sonley, T. D. Steiger, L. C. Stonehill, G. Tesic P. M. Thornewell, N. Tolich, T. Tsui, C. D. Tunnell, T. Van Wechel, R. Van Berg, B. A. VanDevender, C. J. Virtue, B. L. Wall, D. Waller, H. Wan Chan Tseung, J. Wendland, N. West, J. B. Wilhelmy, J. F. Wilkerson, J. R. Wilson, J. M. Wouters, A. Wright, M. Yeh, F. Zhang, K. Zuber. *Phys.Rev. C*87 (2013) 015502
- 8) LOW MULTIPLICITY BURST SEARCH AT THE SUDBURY NEUTRINO OBSERVATORY  
The SNO Collaboration (B. Aharmim *et al*), *Astrophys.J.*728:83, 2011.
- 9) SNO AND THE NEW SNOLAB  
A. B. McDonald, *Prog. Part. Nucl. Phys.* 64:196-198, 2010.
- 10) THE CALIBRATION OF THE SUDBURY NEUTRINO OBSERVATORY USING UNIFORMLY DISTRIBUTED SOURCES  
K. Boudjemline, B. Cai, B.T. Cleveland, H.C. Evans, G.T. Ewan, J. Farine, R.J. Ford, E. uillian, A.L. Hallin, E.D. Hallman, C. Howard, P. Jagam, N.A. Jelley, K.J. Keeter, J.R.

Klein, C. Kraus, C.B. Krauss, R. Lange, I.T. Lawson, J.C. Loach, A.B. McDonald, G. McGregor, A.J. Noble, H.M. O'Keefe, S.J.M. Peeters, A.W.P. Poon, S.D. Reitzner, K. Rielage, R.G.H. Robertson, V.L. Rusu, S.R. Seibert, P. Skensved, M.J. Thomson. Nucl. Instrum. Meth. A620:171-181, 2010.

11) LOW ENERGY THRESHOLD ANALYSIS OF THE PHASE I AND PHASE II DATA SETS OF THE SUDBURY NEUTRINO OBSERVATORY

B. Aharmim, S.N. Ahmed, A.E. Anthony, N. Barros, E.W. Beier, A. Bellerive, B. Beltran, M. Bergevin, S.D. Biller, K. Boudjemline, M.G. Boulay, T.H. Burritt, B. Cai, Y.D. Chan, D. Chauhan, M. Chen, B.T. Cleveland, G.A. Cox, X. Dai, H. Deng, J. Detwiler, M. DiMarco, P.J. Doe, G. Doucas, P.-L. Drouin, C. A. Duba, F.A. Duncan, M. Dunford, E. D. Earle, S.R. Elliott, H.C. Evans, G.T. Ewan, J. Farine, H. Fergani, F. Fleurot, R.J. Ford, J.A. Formaggio, N. Gagnon, J.T.M. Goon, E. Guillian, S. Habib, R.L. Hahn, A.L. Hallin, E.D. Hallman, P.J. Harvey, R. Hazama, W.J. Heintzelman, J. Heise, R.L. Helmer, A. Hime, C. Howard, M.A. Howe, M. Huang, B. Jamieson, N.A. Jelley, K. J. Keeter, J.R. Klein, L. L. Kormos, M. Kos, C. Kraus, C.B. Krauss, T. Kutter, C.C.M. Kyba, J. Law, I.T. Lawson, K.T. Lesko, J.R. Leslie, I. Levine, J.C. Loach, R. MacLellan, S. Majerus, H.B. Mak, J. Maneira, R. Martin, N. McCauley, A.B. McDonald, S. McGee, M.L. Miller, B. Monreal, J. Monroe, B. Morrisette, B. G. Nickel, A.J. Noble, H. M. O'Keefe, N.S. Oblath, G.D. Orebi Gann, S.M. Oser, R.A. Ott, S.J.M. Peeters, A.W.P. Poon, G. Prior, D. Reitzner, K. Rielage, B.C. Robertson, R.G.H. Robertson, M.H. Schwendener, J.A. Secrest, S.R. Seibert, O. Simard, D. Sinclair, P. Skensved, M.W.E. Smith, T.J. Sonley, L.C. Stonehill, G. Tesic, N. Tolich, T. Tsui, C. D. Tunnell, R. Van Berg, B.A. VanDevender, C.J. Virtue, B. L. Wall, D. Waller, H. Wan Chan Tseung, D.L. Wark, N. West, J.F. Wilkerson, J.R. Wilson, J.M. Wouters, A. Wright, M. Yeh, F. Zhang, K. Zuber, Phys.Rev.C81:055504, 2010

12) THE SUDBURY NEUTRINO OBSERVATORY

N. Jelley, A. B. McDonald, R.G.H. Robertson. Ann.Rev.Nucl.Part.Sci.59:431-465, 2009.

13) MEASUREMENT OF THE COSMIC RAY AND NEUTRINO-INDUCED MUON FLUX AT THE SUDBURY NEUTRINO OBSERVATORY

B. Aharmim, S.N. Ahmed, T.C. Andersen, A.E. Anthony, N. Barros, E.W. Beier, A. Bellerive, B. Beltran, M. Bergevin, S.D. Biller, K. Boudjemline, M.G. Boulay, T.H. Burritt, B. Cai, Y.D. Chan, M. Chen, M.C. Chon, B.T. Cleveland, G.A. Cox-Mobrand, C.A. Currat, X. Dai, F. Dalnoki-Veress, H. Deng, J. Detwiler, P.J. Doe, R.S. Dosanjh, G. Doucas, P.-L. Drouin, F.A. Duncan, M. Dunford, S.R. Elliott, H.C. Evans, G.T. Ewan, J. Farine, H. Fergani, F. Fleurot, R.J. Ford, J.A. Formaggio, N. Gagnon, J.T.M. Goon, D.R. Grant, E. Guillian, S. Habib, R.L. Hahn, A.L. Hallin, E.D. Hallman, C.K. Hargrove, P.J. Harvey, R. Hazama, K.M. Heeger, W.J. Heintzelman, J. Heise, R.L. Helmer, R.J. Hemingway, R. Henning, A. Hime, C. Howard, M.A. Howe, M. Huang, B. Jamieson, N.A. Jelley, J.R. Klein, M. Kos, A. Kruger, C. Kraus, C.B. Krauss, T. Kutter, C.C.M. Kyba, R. Lange, J. Law, I.T. Lawson, K.T. Lesko, J.R. Leslie, I. Levine, J.C. Loach, S. Luoma, R. MacLellan, S. Majerus, H.B. Mak, J. Maneira, A.D. Marino, R. Martin, N. McCauley, A.B. McDonald, S. McGee, C. Mifflin, M.L. Miller, B. Monreal, J. Monroe, A.J. Noble, N.S. Oblath, C.E. Okada, H.M. O'Keefe, Y. Opachich, G.D. Orebi Gann, S.M. Oser, R.A. Ott, S.J.M. Peeters, A.W.P. Poon, G. Prior, K. Rielage, B.C. Robertson, R.G.H. Robertson, E. Rollin, M.H. Schwendener, J.A. Secrest, S.R. Seibert, O. Simard, J.J. Simpson, D. Sinclair, P. Skensved, M.W.E. Smith, T.J. Sonley, T.D. Steiger, L.C. Stonehill, N. Tagg, G. Tesic, N. Tolich, T. Tsui, R.G. Van de Water, B.A. VanDevender, C.J. Virtue, D. Waller, C.E.

Waltham, H. Wan Chan Tseung, D.L. Wark, P. Watson, J. Wendland, N. West, J.F. Wilkerson, J.R. Wilson, J.M. Wouters, A. Wright, M. Yeh, F. Zhang, K. Zuber Phys.Rev.D80:012001, 2009.

14) AN INDEPENDENT MEASUREMENT OF THE TOTAL ACTIVE  $^8\text{B}$  SOLAR NEUTRINO FLUX USING AN ARRAY OF  $^3\text{He}$  PROPORTIONAL COUNTERS AT THE SUDBURY NEUTRINO OBSERVATORY

B.Aharmim, S.N. Ahmed, J.F. Amsbaugh, A.E. Anthony, J. Banar, N. Barros, E.W. Beier, A. Bellerive, B. Beltran, M. Bergevin, S.D. Biller, K. Boudjemline, M.G. Boulay, T.J. Bowles, M.C. Browne, T.V. Bullard, T.H. Burritt, B. Cai, Y.D. Chan, D. Chauhan, M. Chen, B.T. Cleveland, G.A. Cox-Mobrand, C.A. Currat, X. Dai, H. Deng, J. Detwiler, M. DiMarco, P.J. Doe, G. Doucas, P.-L. Drouin, C.A. Duba, F.A. Duncan, M. Dunford, E.D. Earle, S.R. Elliott, H.C. Evans, G.T. Ewan, J. Farine, H. Fergani, F. Fleurot, R.J. Ford, J.A. Formaggio, M.M. Fowler, N. Gagnon, J.V. Germani, A. Goldschmidt, J.T.M. Goon, K. Graham, E. Guillian, S. Habib, R.L. Hahn, A.L. Hallin, E.D. Hallman, A.A. Hamian, G.C. Harper, P.J. Harvey, R. Hazama, K.M. Heeger, W.J. Heintzelman, J. Heise, R.L. Helmer, R. Henning, A. Hime, C. Howard, M.A. Howe, M. Huang, P. Jagam, B. Jamieson, N.A. Jelley, K.J. Keeter, J.R. Klein, L.L. Kormos, M. Kos, A. Kr\{u\}ger, C. Kraus, C.B. Krauss, T. Kutter, C.C.M. Kyba, R. Lange, J. Law, I.T. Lawson, K.T. Lesko, J.R. Leslie, J.C. Loach, R. MacLellan, S. Majerus, H.B. Mak, J. Maneira, R. Martin, K. McBryde, N. McCauley, A.B. McDonald, S. McGee, C. Mifflin, G.G. Miller, M.L. Miller, B. Monreal, J. Monroe, B. Morissette, A. Myers, B.G. Nickel, A.J. Noble, N.S. Oblath, H.M. O'Keefe, R.W. Ollerhead, G.D. Orebi Gann, S.M. Oser, R.A. Ott, S.J.M. Peeters, A.W.P. Poon, G. Prior, S.D. Reitzner, K. Rielage, B.C. Robertson, R.G.H. Robertson, E. Rollin, M.H. Schwendener, J.A. Secrest, S.R. Seibert, O. Simard, J.J. Simpson, L. Sinclair, P. Skensved, M.W.E. Smith, T.D. Steiger, L.C. Stonehill, G. Te\{s\}i\{c\}, P.M. Thornewell, N. Tolich, T. Tsui, C.D. Tunnell, T. Van Wechel, R. Van Berg, B.A. VanDevender, C.J. Virtue, T.J. Walker, B.L. Wall, D. Waller, H. Wan Chan Tseung, J. Wendland, N. West, J.B. Wilhelmy, J.F. Wilkerson, J.R. Wilson, J.M. Wouters, A. Wright, M. Yeh, F. Zhang, K. Zuber. arxiv:0806.0989, Phys. Rev. Lett. 101, 111301 (2008).

15) THE SNO+ EXPERIMENT

SNO+ Collaboration (Mark C. Chen for the collaboration).

34th International Conference on High Energy Physics (ICHEP 2008), Philadelphia, Pennsylvania, arXiv:0810.3694 [hep-ex]

16) A SEARCH FOR NEUTRINOS FROM THE SOLAR HEP REACTION AND THE DIFFUSE SUPERNOVA BACKGROUND WITH THE SUDBURY NEUTRINO OBSERVATORY.

B. Aharmim, S.N. Ahmed, A.E. Anthony, E.W. Beier, A. Bellerive, M. Bergevin, S.D. Biller, M.G. Boulay, Y.D. Chan, M. Chen, X. Chen, B.T. Cleveland, G.A. Cox, C.A. Currat, X. Dai, F. DalnokiVeress, H. Deng, J. Detwiler, M. DiMarco, P.J. Doe, G. Doucas, P.-L. Drouin, F.A. Duncan, M. Dunford, J.A. Dunmore, E.D. Earle, H.C. Evans, G.T. Ewan, J. Farine, H. Fergani, F. Fleurot, R.J. Ford, J.A. Formaggio, N. Gagnon, J.T.M. Goon, K. Graham, E. Guillian, R.L. Hahn, A.L. Hallin, E.D. Hallman, P.J. Harvey, R. Hazama, K.M. Heeger, W.J. Heintzelman, J. Heise, R.L. Helmer, R.J. Hemingway, R. Henning, A. Hime, C. Howard, M.A. Howe, M. Huang, P. Jagam, N.A. Jelley, J.R. Klein, L.L. Kormos, M. Kos, A. Kruger, C. Kraus, C.B. Krauss, T. Kutter, C.C.M. Kyba, H. Labranche, R. Lange, J. Law, I.T. Lawson, K.T. Lesko, J.R. Leslie, J.C. Loach, S. Luoma, R. MacLellan, S. Majerus, H.B. Mak, J. Maneira, A.D. Marino, R. Martin, N. McCauley, A.B. McDonald, S. McGee, C. Mifflin, K.K.S. Miknaitis, M.L. Miller, B. Monreal, B.G. Nickel, A.J. Noble, E.B. Norman, N.S. Oblath, C.E. Okada, H.M. O'Keefe, G.D. Orebi

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17) MEASUREMENT OF THE  $\nu_e$  AND TOTAL  $^8\text{B}$  SOLAR NEUTRINO FLUXES WITH THE SUDBURY NEUTRINO OBSERVATORY PHASE 1 DATA SET

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