

CONTACT INFORMATION	Department of Nuclear Engineering University of California, Berkeley 2521 Hearst Ave Berkeley, CA 94709	Phone: 510-486-4709 E-mail: manfredi@berkeley.edu
EDUCATION	Michigan State University , East Lansing, MI Ph.D., Physics <i>August 2012 - August 2018</i> Graduate Certificate in Computational Modeling <i>August 2014 - May 2017</i> M.S., Physics <i>August 2012 - May 2015</i> Thesis Topic: <i>Asymmetry Dependence of Spectroscopic Factors: A Study of Transfer Reactions on Argon Isotopes at 70 MeV/u</i>	
	Washington University in St. Louis , St. Louis, MO B.A., Mathematics, Physics <i>August 2008 - May 2012</i> <i>Summa cum laude</i> , Honors in Physics, and Distinction in Mathematics	
RESEARCH EXPERIENCE	Postdoctoral Scholar <i>August 2018 - present</i> University of California, Berkeley Berkeley, CA <ul style="list-style-type: none"> • Lead analysis and simulation software development for Optically Segmented Single-Volume Scatter Camera prototype • Develop imaging framework for kinematic neutron imaging, including a novel unbinned MLEM analytical image reconstruction approach • Plan, execute, and analyze accelerated beam experiments for studying neutron response of novel scintillator materials • Advise undergraduate students on photodetector and scintillator material characterization projects 	
	Research Assistant <i>August 2012 - July 2018</i> National Superconducting Cyclotron Laboratory (NSCL) Michigan State University East Lansing, MI <ul style="list-style-type: none"> • Demonstrated validity of high energy transfer reactions as a probe for nuclear structure of exotic nuclei • Led project team of 20+ to design and execute rare-isotope beam experiments • Developed software for data acquisition, particle-transport simulation, data analysis, and theoretical modeling of nuclear reactions • Characterized 1300+ channel silicon-strip-detector array, including sub-micron dead layer thickness measurement 	
	Stewardship Science Graduate Fellow <i>May 2014 - August 2014</i> Lawrence Livermore National Laboratory Livermore, CA <ul style="list-style-type: none"> • Modeled neutron star equations of state using a massively parallel multi-physics radiation hydrodynamics code 	
	Undergraduate Assistant <i>August 2009 - May 2012</i> Washington University in St. Louis St. Louis, MO <ul style="list-style-type: none"> • Led data mining and analysis effort to place new constraints on exotic decay modes relevant for nuclear astrophysics 	

- [1] T. B. Webb, R. J. Charity, J. M. Elson, D. E. M. Hoff, C. D. Pruitt, L. G. Sobotka, K. W. Brown, J. Barney, G. Cerizza, J. Estee, W. G. Lynch, J. Manfredi, P. Morfouace, C. Santamaria, S. Sweany, M. B. Tsang, T. Tsang, Y. Zhang, K. Zhu, S. A. Kuvin, D. McNeel, J. Smith, A. H. Wuosmaa, and Z. Chajecki, “Invariant-mass spectrum of ^{11}O ,” *Phys. Rev. C*, vol. 101, p. 044317, Apr 2020
- [2] K. Zhu, M. Tsang, D. Dell’Aquila, K. Brown, Z. Chajecki, W. Lynch, S. Sweany, F. Teh, C. Tsang, C. Anderson, A. Anthony, J. Barney, J. Crosby, J. Estee, I. Gasparic, G. Jhang, O. Khanal, S. Kodali, **J. Manfredi**, C. Niu, and R. Wang, “Calibration of large neutron detection arrays using cosmic rays,” *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 967, p. 163826, 2020
- [3] T. Laplace, B. Goldblum, J. Brown, and **J.J. Manfredi**, “Scintillator light yield measurements with waveform digitizers,” *Nucl. Inst. and Meth. A*, vol. 959, p. 163485, 2020
- [4] **J. J. Manfredi**, B. L. Goldblum, T. A. Laplace, G. Gabella, J. Gordon, A. O’Brien, S. Chowdhury, J. A. Brown, and E. Brubaker, “Proton light yield of fast plastic scintillators for neutron imaging,” *IEEE Transactions on Nuclear Science*, vol. 67, no. 2, pp. 434–442, 2020
- [5] R. J. Charity, K. W. Brown, J. Okołowicz, M. Płoszajczak, J. M. Elson, W. Reviol, L. G. Sobotka, W. W. Buhro, Z. Chajecki, W. G. Lynch, **J. Manfredi**, R. Shane, R. H. Showalter, M. B. Tsang, D. Weisshaar, J. R. Winkelbauer, S. Bedoor, and A. H. Wuosmaa, “Invariant-mass spectroscopy of ^{14}O excited states,” *Phys. Rev. C*, vol. 100, p. 064305, Dec 2019
- [6] T. B. Webb, R. J. Charity, J. M. Elson, D. E. M. Hoff, C. D. Pruitt, L. G. Sobotka, K. W. Brown, J. Barney, G. Cerizza, J. Estee, G. Jhang, W. G. Lynch, **J. Manfredi**, P. Morfouace, C. Santamaria, S. Sweany, M. B. Tsang, T. Tsang, S. M. Wang, Y. Zhang, K. Zhu, S. A. Kuvin, D. McNeel, J. Smith, A. H. Wuosmaa, and Z. Chajecki, “Particle decays of levels in $^{11,12}\text{N}$ and ^{12}O investigated with the invariant-mass method,” *Phys. Rev. C*, vol. 100, p. 024306, Aug 2019
- [7] D. Dell’Aquila, S. Sweany, K. Brown, Z. Chajecki, W. Lynch, F. Teh, C.-Y. Tsang, M. Tsang, K. Zhu, C. Anderson, A. Anthony, S. Barlini, J. Barney, A. Camariani, G. Jhang, J. Crosby, J. Estee, M. Ghazali, F. Guan, O. Khanal, S. Kodali, I. Lombardo, **J. Manfredi**, L. Morelli, P. Morfouace, C. Niu, and G. Verde, “Non-linearity effects on the light-output calibration of light charged particles in csi(tl) scintillator crystals,” *Nucl. Inst. and Meth. A*, vol. 929, pp. 162 – 172, 2019
- [8] R. J. Charity, K. W. Brown, J. Elson, W. Reviol, L. G. Sobotka, W. W. Buhro, Z. Chajecki, W. G. Lynch, **J. Manfredi**, R. Shane, R. H. Showalter, M. B. Tsang, D. Weisshaar, J. Winkelbauer, S. Bedoor, D. G. McNeel, and A. H. Wuosmaa, “Invariant-mass spectroscopy of ^{18}Ne , ^{16}O , and ^{10}C excited states formed in neutron-transfer reactions,” *Phys. Rev. C*, vol. 99, p. 044304, Apr 2019
- [9] T. B. Webb, S. M. Wang, K. W. Brown, R. J. Charity, J. M. Elson, J. Barney, G. Cerizza, Z. Chajecki, J. Estee, D. E. M. Hoff, S. A. Kuvin, W. G. Lynch, **J. Manfredi**, D. McNeel, P. Morfouace, W. Nazarewicz, C. D. Pruitt, C. Santamaria, J. Smith, L. G. Sobotka, S. Sweany, C. Y. Tsang, M. B. Tsang, A. H. Wuosmaa, Y. Zhang, and K. Zhu, “First observation of unbound ^{11}O , the mirror of the halo nucleus ^{11}Li ,” *Phys. Rev. Lett.*, vol. 122, p. 122501, Mar 2019

- [10] R. J. Charity, K. W. Brown, J. Okołowicz, M. Płoszajczak, J. M. Elson, W. Reviol, L. G. Sobotka, W. W. Buhro, Z. Chajecski, W. G. Lynch, **J. Manfredi**, R. Shane, R. H. Showalter, M. B. Tsang, D. Weisshaar, J. R. Winkelbauer, S. Bedoor, and A. H. Wuosmaa, “Spin alignment following inelastic scattering of ^{17}Ne , lifetime of ^{16}F , and its constraint on the continuum coupling strength,” *Phys. Rev. C*, vol. 97, p. 054318, May 2018
- [11] **J. Manfredi**, J. Lee, W. Lynch, C. Niu, M. Tsang, C. Anderson, J. Barney, K. Brown, Z. Chajecski, K. Chan, G. Chen, J. Estee, Z. Li, C. Pruitt, A. Rogers, A. Sanetullaev, H. Setiawan, R. Showalter, C. Tsang, J. Winkelbauer, Z. Xiao, and Z. Xu, “On determining dead layer and detector thicknesses for a position-sensitive silicon detector,” *Nucl. Inst. and Meth. A*, vol. 888, pp. 177 – 183, 2018
- [12] J. Bradt, Y. Ayyad, D. Bazin, W. Mittig, T. Ahn, S. B. Novo, B. Brown, L. Carpenter, M. Cortesi, M. Kuchera, W. Lynch, S. Rost, N. Watwood, J. Yurkon, J. Barney, U. Datta, J. Estee, A. Gillibert, **J. Manfredi**, P. Morfouace, D. Pérez-Loureiro, E. Pollacco, J. Sammut, and S. Sweany, “Study of spectroscopic factors at $n=29$ using isobaric analogue resonances in inverse kinematics,” *Physics Letters B*, vol. 778, pp. 155 – 160, 2018
- [13] K. W. Brown, R. J. Charity, J. M. Elson, W. Reviol, L. G. Sobotka, W. W. Buhro, Z. Chajecski, W. G. Lynch, **J. Manfredi**, R. Shane, R. H. Showalter, M. B. Tsang, D. Weisshaar, J. R. Winkelbauer, S. Bedoor, and A. H. Wuosmaa, “Proton-decaying states in light nuclei and the first observation of ^{17}Na ,” *Phys. Rev. C*, vol. 95, p. 044326, Apr 2017
- [14] A. H. Wuosmaa, S. Bedoor, K. W. Brown, W. W. Buhro, Z. Chajecski, R. J. Charity, W. G. Lynch, **J. Manfredi**, S. T. Marley, D. G. McNeel, A. S. Newton, D. V. Shetty, R. H. Showalter, L. G. Sobotka, M. B. Tsang, J. R. Winkelbauer, and R. B. Wiringa, “Ground-state properties of ^5H from the $^6\text{He}(d, ^3\text{He})^5\text{H}$ reaction,” *Phys. Rev. C*, vol. 95, p. 014310, Jan 2017
- [15] K. W. Brown, R. J. Charity, L. G. Sobotka, L. V. Grigorenko, T. A. Golubkova, S. Bedoor, W. W. Buhro, Z. Chajecski, J. M. Elson, W. G. Lynch, **J. Manfredi**, D. G. McNeel, W. Reviol, R. Shane, R. H. Showalter, M. B. Tsang, J. R. Winkelbauer, and A. H. Wuosmaa, “Interplay between sequential and prompt two-proton decay from the first excited state of ^{16}Ne ,” *Phys. Rev. C*, vol. 92, p. 034329, Sep 2015
- [16] D. Sarantites, W. Reviol, J. Elson, J. Kinnison, C. Izzo, **J. Manfredi**, J. Liu, H. Jung, and J. Goerres, “Phoswich wall: A charged-particle detector array for inverse-kinematic reactions with the gretina/greta γ -ray arrays,” *Nucl. Inst. and Meth. A*, vol. 790, pp. 42 – 56, 2015
- [17] R. J. Charity, J. M. Elson, **J. Manfredi**, R. Shane, L. G. Sobotka, Z. Chajecski, D. Coupland, H. Iwasaki, M. Kilburn, J. Lee, W. G. Lynch, A. Sanetullaev, M. B. Tsang, J. Winkelbauer, M. Youngs, S. T. Marley, D. V. Shetty, and A. H. Wuosmaa, “Spin alignment of excited projectiles due to target spin-flip interactions,” *Phys. Rev. C*, vol. 91, p. 024610, Feb 2015
- [18] K. W. Brown, R. J. Charity, L. G. Sobotka, Z. Chajecski, L. V. Grigorenko, I. A. Egorova, Y. L. Parfenova, M. V. Zhukov, S. Bedoor, W. W. Buhro, J. M. Elson, W. G. Lynch, **J. Manfredi**, D. G. McNeel, W. Reviol, R. Shane, R. H. Showalter, M. B. Tsang, J. R. Winkelbauer, and A. H. Wuosmaa, “Observation of long-range three-body coulomb effects in the decay of ^{16}Ne ,” *Phys. Rev. Lett.*, vol. 113, p. 232501, Dec 2014

- [19] K. W. Brown, W. W. Buhro, R. J. Charity, J. M. Elson, W. Reviol, L. G. Sobotka, Z. Chajecski, W. G. Lynch, **J. Manfredi**, R. Shane, R. H. Showalter, M. B. Tsang, D. Weisshaar, J. R. Winkelbauer, S. Bedoor, and A. H. Wuosmaa, “Two-proton decay from the isobaric analog state in ^8B ,” *Phys. Rev. C*, vol. 90, p. 027304, Aug 2014
- [20] L. G. Sobotka, W. W. Buhro, R. J. Charity, J. M. Elson, M. F. Jager, **J. Manfredi**, M. H. Mahzoon, A. M. Mukhamedzhanov, V. Eremenko, M. McCleskey, R. G. Pizzone, B. T. Roeder, A. Spiridon, E. Simmons, L. Trache, M. Kurokawa, and P. Navrátil, “Proton decay of excited states in ^{12}n and ^{13}o and the astrophysical $^{11}\text{c}(p,\gamma)^{12}\text{n}$ reaction rate,” *Phys. Rev. C*, vol. 87, p. 054329, May 2013
- [21] I. A. Egorova, R. J. Charity, L. V. Grigorenko, Z. Chajecski, D. Coupland, J. M. Elson, T. K. Ghosh, M. E. Howard, H. Iwasaki, M. Kilburn, J. Lee, W. G. Lynch, **J. Manfredi**, S. T. Marley, A. Sanetullaev, R. Shane, D. V. Shetty, L. G. Sobotka, M. B. Tsang, J. Winkelbauer, A. H. Wuosmaa, M. Youngs, and M. V. Zhukov, “Democratic decay of ^6Be exposed by correlations,” *Phys. Rev. Lett.*, vol. 109, p. 202502, Nov 2012
- [22] M. F. Jager, R. J. Charity, J. M. Elson, **J. Manfredi**, M. H. Mahzoon, L. G. Sobotka, M. McCleskey, R. G. Pizzone, B. T. Roeder, A. Spiridon, E. Simmons, L. Trache, and M. Kurokawa, “Two-proton decay of ^{12}o and its isobaric analog state in ^{12}n ,” *Phys. Rev. C*, vol. 86, p. 011304, Jul 2012
- [23] **J. Manfredi**, R. J. Charity, K. Mercurio, R. Shane, L. G. Sobotka, A. H. Wuosmaa, A. Banu, L. Trache, and R. E. Tribble, “ α decay of the excited states in ^{12}c at 7.65 and 9.64 mev,” *Phys. Rev. C*, vol. 85, p. 037603, Mar 2012
- [24] R. J. Charity, J. M. Elson, **J. Manfredi**, R. Shane, L. G. Sobotka, Z. Chajecski, D. Coupland, H. Iwasaki, M. Kilburn, J. Lee, W. G. Lynch, A. Sanetullaev, M. B. Tsang, J. Winkelbauer, M. Youngs, S. T. Marley, D. V. Shetty, A. H. Wuosmaa, T. K. Ghosh, and M. E. Howard, “Isobaric multiplet mass equation for $a = 7$ and 8,” *Phys. Rev. C*, vol. 84, p. 051308, Nov 2011
- [25] R. J. Charity, J. M. Elson, **J. Manfredi**, R. Shane, L. G. Sobotka, B. A. Brown, Z. Chajecski, D. Coupland, H. Iwasaki, M. Kilburn, J. Lee, W. G. Lynch, A. Sanetullaev, M. B. Tsang, J. Winkelbauer, M. Youngs, S. T. Marley, D. V. Shetty, A. H. Wuosmaa, T. K. Ghosh, and M. E. Howard, “Investigations of three-, four-, and five-particle decay channels of levels in light nuclei created using a ^9C beam,” *Phys. Rev. C*, vol. 84, p. 014320, Jul 2011
- [26] R. J. Charity, J. M. Elson, **J. Manfredi**, R. Shane, L. G. Sobotka, Z. Chajecski, D. Coupland, H. Iwasaki, M. Kilburn, J. Lee, W. G. Lynch, A. Sanetullaev, M. B. Tsang, J. Winkelbauer, M. Youngs, S. T. Marley, D. V. Shetty, A. H. Wuosmaa, T. K. Ghosh, and M. E. Howard, “ $2p$ - $2p$ decay of ^8C and isospin-allowed $2p$ decay of the isobaric-analog state in ^8B ,” *Phys. Rev. C*, vol. 82, p. 041304, Oct 2010

ACADEMIC
HONORS

- NSSC Fellowship May 2020 - present
- MSU Dissertation Completion Fellowship August 2017 - December 2017
- NNSA Stewardship Science Graduate Fellowship September 2013 - August 2017
- NSCL Fellowship August 2012 - September 2017
- College of Natural Science Recruiting Fellowship August 2012 - July 2013
- MARC U-STAR Fellowship January 2011 - May 2012
- Washington University Eliot Scholarship August 2008 - May 2012
- Washington University Robert Levis Family Scholarship August 2008 - May 2012

OTHER
PUBLICATIONS

[1] J. Manfredi. "Starstruck," Stewardship Science Magazine, 2014.

INVITED TALKS

- *An Optically Segmented Single-Volume Scatter Camera for Compact, High-efficiency Neutron Imaging*
University Program Review
Raleigh, NC *June 5, 2019*
- *Organic Scintillator Light Yield at Berkeley/LBNL*
Theia Workshop, Fermilab
Batavia, IL *December 13, 2018*
- *Extracting Spectroscopic Factors from High-Energy Transfer Reactions*
Bay Area Neutron Group Meeting
Berkeley, CA *January 26, 2018*
- *Extracting Spectroscopic Factors from High-Energy Transfer Reactions*
Nuclear Data Seminar, Los Alamos National Laboratory
Los Alamos, NM *December 11, 2017*
- *Transfer Reactions on Argon Isotopes*
SSGF Annual Review Meeting
Santa Fe, NM *June 22, 2017*

TEACHING
EXPERIENCE

Michigan State University, East Lansing, MI *March 2016 - September 2016*
Institute for Scientists and Engineers Professional Development Program

- Participated in two weekend workshops dedicated to inquiry-based learning, fostering equity and inclusion, and learner assessment techniques
- Designed and ran an inquiry-based physics lab activity for Michigan State students in an introductory course
- Served as substitute lecturer for 200 person introductory course

Washington University, St. Louis, MO *August 2009 - December 2011*
Peer Led Team Learning Leader (Chemistry)

- Led weekly meetings of students in an introductory chemistry course
- Guided students towards correct answers of study problems in order to facilitate understanding of important concepts

CONTRIBUTED
TALKS

- *An Optically Segmented Single-Volume Scatter Camera for Compact, High-efficiency Neutron Imaging*
International Conference on the Application of Nuclear Techniques
Rethymno, Crete, Greece *June 11, 2019*
- *Asymmetry Dependence of Spectroscopic Factors: A Study of Transfer Reactions on Argon Isotopes at 70 MeV/u*
NSCL PhD Thesis Defense
East Lansing, MI *July 16, 2018*
- *Extracting Spectroscopic Factors of Argon Isotopes from Transfer Reactions*
APS Division of Nuclear Physics Fall Meeting 2017

Pittsburgh, PA *October 26, 2017*

- *Extracting Spectroscopic Factors of Argon Isotopes from Transfer Reactions*
Huzhou-CUSTIPEN Workshop on Spectroscopy and Reactions of Exotic Nuclei
Huzhou, China *July 5, 2017*
- *GPU-Accelerated Lanczos Diagonalization*
APS Ohio-Region Meeting
Ypsilanti, MI *May 6, 2017*
- *Extracting Spectroscopic Factors of Argon Isotopes from Transfer Reactions*
APS April Meeting 2017
Washington DC *January 31, 2017*
- *Alpha Decay of Excited States in ^{12}C*
Nuclear Lunch, Washington University in St. Louis
St. Louis, MO *February 3, 2012*

PROFESSIONAL
SERVICE

- Referee
 - ★ Department of Energy, Office of Nuclear Physics
 - ★ Nuclear Instrumentation and Methods
 - ★ Review of Scientific Instruments
 - ★ International Journal of Modern Physics
 - ★ Radiation Measurements
- Tour Guide
National Superconducting Cyclotron Laboratory (NSCL) *August 2013 - July 2018*
 - ★ Conducted over 30 tours of the lab to audiences with a wide range of technical expertise, often to groups from the local community
- Science and Leadership at Michigan State
Michigan State University *August 2016 - August 2017*
 - ★ Organized summer science camp for middle school students from Lansing Public Schools
 - ★ Oversaw activity design, student recruitment, and
- President
NSCL Graduate Student Organization *August 2015 - August 2016*
 - ★ Represented graduate student community to lab leadership
 - ★ Organized weekly graduate student seminars
- Outreach Coordinator
Women and Minorities in the Physical Sciences *August 2015 - May 2016*
 - ★ Planned and conducted science education events for general public
 - ★ Represented university at the National Society for Black Physicists Annual Meeting
- Volunteer Leader
Physics of Atomic Nuclei *August 2013 - August 2015*
 - ★ Instructed high school teachers from around the country about basic nuclear physics

PROFESSIONAL
MEMBERSHIPS

- American Physical Society (2011 - present)
- Joint Institute for Nuclear Astrophysics (2012 - 2018)

POSTERS

- *Scintillator Characterization of Fast Plastics*
 - [1] University Program Review
Raleigh, NC *June 2-4, 2019*
- *Extracting Spectroscopic Factors Using Transfer Reactions*
 - [2] University and Industry Technical Interchange
Ann Arbor, MI *June 2-4, 2015*
 - [3] Stewardship Science Graduate Fellowship Annual Program Review
Washington D.C. *June 29 - July 2, 2015*
 - [4] Stewardship Science Graduate Fellowship Annual Program Review
Las Vegas, NV *June 27 - June 30, 2016*
- *Investigation of Neutron Star Mass using the Nuclear Equation of State*
 - [5] Livermore PLS Division Summer Poster Session
Livermore, CA *August 2014*
- *The High Resolution Array (HiRA): A Large Solid Angle Silicon Array for Rare Isotope Beam Experiments*
 - [6] Stewardship Science Academic Program Symposium
Washington D.C. *February 19-20, 2014*
 - [7] DOE NNSA SSGF Annual Program Review
Berkeley, CA *June 23-25, 2014*
- *α -decay of excited states in ^{12}C*
 - [8] Fall Meeting of the APS Division of Nuclear Physics
Newport Beach, CA *October 24-27, 2012*
 - [9] Nuclear Structure 2012
Lemont, IL *August 13-17, 2012*
 - [10] St. Louis Area Undergraduate Research Symposium
St. Louis, MO *April 21, 2012*
 - [11] Washington University Undergraduate Research Symposium
St. Louis, MO *April 28, 2012*
- *Mass of ^8C and its five body decay through ^6Be*
 - [12] Fall Meeting of the APS Division of Nuclear Physics
East Lansing, MI *October 26-29, 2011*