Alexander M. **Long**

Post Doctoral Researcher · P-27 LANSCE Weapons Physics · Los Alamos National Laboratory

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Citizenship: United States of America

Education

University of Notre Dame

Notre Dame, Indiana USA

Ph.D., Physics - GPA: 3.7/4.0 *(June 2009 - July 2016)*

- Thesis Topics: An Indirect Study of The Astrophysical ^{34}Ar(α,p)^{37}K Reaction and its Influence on Type-1 X-Ray Burst Light Curves.
- Advisor: Professor Michael Wiescher

Florida State University

Tallahassee, Florida USA

B.S., Physics with Honors - GPA: 3.4/4.0 *(August 2004 - May 2009)*

- Honors Thesis Topic: Time-of-Flight Calibrations of Neutron Wall Array at John D. Fox Superconducting Accelerator Laboratory
- Advisor: Professor Grigory Rogachev (Now at Texas A&M University)

Research Experience

Weapons Neutron Research Facility

LANSCE @ LANL, USA

Post Doctoral Researcher *2016 - Present*

- Development of the Low Energy (N,Z) (LENZ) experimental program at WNR/LANSCE.
  - Developing digital data acquisition systems, along with unpacking and analysis codes for the LENZ experimental program.
- Investigation of the H production reaction ^{55}Mn(n,p)^{55}Cr for core structural materials to be used in future nuclear reactor designs.
  - Performed cross-section measurements on the ^{55}Mn(n,p)^{55}Cr reaction using LENZ to investigate the influence of this reaction as a source of neutron irradiation damage in structural materials in future fission and fusion devices.
- Investigations of neutron irradiation damage in F-M steels through precision measurements of the He gas production reaction ^{56}Fe(n,α).
  - Performed ^{56}Fe(n,α) reaction cross-section measurements using LENZ to better understand He production rates in various F-M steels materials to be used in future reactor core designs.
  - Proposed ^{54}Fe(n,α) and ^{52}Cr(n,α) reaction cross-section measurements using LENZ for 2018 LANSCE run cycle as a continuation of campaign to measure He production in F-M steels.
- Investigation of uncertainties in the ^{35}Cl(n,p) reaction as a neutron energy probe in CLYC detectors.
  - Performed ^{35}Cl(n,p) reaction measurements with LENZ to better constrain resonance region cross-sections to improve uncertainties in this reaction as a neutron energy probe in CLYC detectors.

iThemba Laboratory for Accelerator Based Science

iThemba LABS, South Africa

Visiting Researcher *2012 - 2016*

- Investigation of (α,p) reaction rates along the αp-process path in Type 1 X-ray Bursts
  - Measurements of α-capture resonance states in ^{18}Ne, ^{30}S, and ^{38}Ca through the (p,t) reaction with the K600 spectrometer to indirectly calculate ^{14}O(α,p)^{17}F, ^{26}Si(α,p)^{30}S, and ^{34}Ar(α,p)^{38}Ca reaction rates, respectively.
- Investigation of ^{44}Ti synthesis in core collapse super novae through the indirect measurement of the ^{44}Ti(α,p)^{47}V reaction rate.
  - Coincidence measurements of α-capture resonance states in ^{48}Cr using the ^{50}Cr(p,t)^{48}Cr reaction with the K600 spectrometer and CAKE Si array system to indirectly measure the ^{44}Ti(α,p)^{47}V reaction rate at relevant stellar temperatures.

Research Center for Nuclear Physics

RCNP @ Univ. of Osaka, Japan

Visiting Researcher *2010 - 2016*

- Study of ^{44}Ti synthesis in core collapse super novae through the indirect measurement of the ^{45}V(p,γ)^{46}Cr reaction rate
  - Performed ^{50}Cr(α,^{8}He)^{46}Cr reaction measurements using the Grand Raiden spectrograph in order to probe (p,γ) resonances in ^{46}Cr. By studying resonance properties in ^{46}Cr, the ^{45}V(p,γ)^{46}Cr reaction rate can be indirectly determined.
- Investigation of transitions between the αp and rp-process in H/He explosive burning during Type 1 X-ray Bursts through indirect measurements of the ^{38}Ca(α,p)^{41}Sc reaction rate.
  - Using the Grand Raiden magnetic spectrometer, performed measurements of α-unbound states in ^{42}Ti through the ^{46}Ti(α,^{8}He) reactions in order to calculate the ^{38}Ca(α,p)^{41}Sc reaction rate at explosive burning temperatures in XRB's.
- Investigation of the ^{22}Ne(α,n)^{25}Mg reaction as an effective neutron source for the s-process during core helium burning in Red Giant stars and helium shell burning in AGB stars.
  - Performed experiments probing sub and near neutron-threshold levels in ^{26}Mg through the ^{22}Ne(α,α'), ^{22}Ne(^{6}Li,d), and ^{25}Mg($\vec{d}$,p) reactions using the Grand Raiden magnetic spectrometer to indirectly measure ^{22}Ne(α,γ) and ^{22}Ne(α,n) reaction rates at relevant stellar temperatures.

Nuclear Science Laboratory

ISNAP @ Univ. of Notre Dame, USA

Assistant Researcher

2009 - 2016

- Investigation of neutron background at potential sites for the DIANA project (now called CASPER).
  - Participated in neutron background measurements at two potential sites for the underground accelerator project DIANA, Sanford Underground Research Facility (SURF) and the Waste Isolation Pilot Plant (WIPP). Neutron Background measurements were made using ^{3}He proportional counters.
- Reconstruction of the HIgh Pressure POint like gas target (HIPPO) with implementation of gas recirculation capabilities
  - Worked in collaboration on the reconstruction of the supersonic helium jet gas target system, HIPPO, at the NSL with newly upgraded pumping lines and roots blower pumps, along with the implementation of a recirculation gas system.
- Auxiliary research assistant at the Nuclear Science Laboratory for outside users
  - Operation of the 10.6 MV FN Tandem and 5 MV Van der Graaf accelerators.
  - Operation of MC-SNICS Sputter Ion Source, Helium ion source (HIS), and Electron Cyclotron Resonance ion source.
  - Participated in an experiment measuring the ^{19}F(α,n) reaction cross section for safeguard purposes using the neutron detector array, VANDLE.
  - Participated in three commissioning experiments for a the 4π summing NaI(Tl) detector, SuN.

John D. Fox Superconducting Linear Accelerator Laboratory

Fox Nuclear Lab @ FSU, USA

Undergraduate Researcher

2009 - 2016

- Participated in the commissioning of the Neutron Time-of-Flight Array at the John D. Fox Superconducting Linear Accelerator Laboratory.
  - Calibrated plastic scintillating detectors in the Neutron Time-of-Flight Array using neutron emission from spontaneous fission of a ^{252}Cf source.

Honors & Awards

2007	**Inducted into The National Honorary Fraternity of the Society for Physics Students**,	*FSU*
2008	**Guenter Schwarz Memorial Scholar Award**,	*FSU*
2014	**Notre Dame Graduate School Professional Development Award**,	*UND*
2014	**Notre Dame Graduate Student Union Conference Presentation Award**,	*UND*
2016	**Recipient of the Nuclear Science Laboratory's Cornelius P. Browne Memorial Award**,	*UND*

Organizations and Committees

2011-5014	**Board Member**, Graduate Physics Students Conference Committee	*UND*
2010-2011	**Committee Member**, Department of Physics Graduate Recruitment Committee	*UND*
2016	**Vice Chair**, JINA-CEE Frontiers in Nuclear Astrophysics Meeting Organizing Committee	*UND*

Technical Experience

Ion Beam Production	Multi-Cathode Source of Negative Ions by Cesium Sputtering @ NSL: Operations
	Helium Ion Source @ NSL: Operations
	Electron Cyclotron Resonance Ion Source @ NSL: Operations and maintenance
Ion Beam Transportation	10 MV FN Tandem Accelerator @ NSL: Operations and maintenance
	5 MV Van der Graaf Accelerator @ NSL: Operations and maintenance
	Beamline optics and fabrication
	Dispersion matching of beam lines to magnetic spectrographs
Vacuum Systems	Roughing pumps, Roots Blowers, Turbo-molecular Pumps, Cryogenic pumps
Radiation Detection	Plastic Scintillators
	Silicon Detectors: Diodes and Double sided
	High Purity Germanium Detectors
	^{3}He Proportional Counters
	Multi-Wire Drift Chambers
Analog Pulse Processing	Pre-Amplifiers, Constant Fraction Discriminators, Amplifiers, Gate-Generators,
	Analog-to-Digital Converters
Digital Pulse Processing	CAEN Family Digitizers

Computational Experience

Base Languages C/C++, Python, BASH & SHELL, HTML, CSS, LaTeX
Programing ROOT, MIDAS, Qt
Modeling TALYS, XNet, VH1, DWUCK4, Geant4, AutoCAD

Presentations

Investigation of αp-Waiting Points through High Precision (p,t) Measurements — *East Lansing, MI*
2011 Fall Meeting of the APS Division of Nuclear Physics: *Oral* — *2011*

Indirect Measurements of ^{26}Si(α,p)^{30}S and ^{34}Ar(α,p)^{38}Ca Reaction Rates through High Precision (p,t) Measurements — *East Lansing, MI*
Joint Institute for Nuclear Astrophysics (JINA) 2012 Frontiers Meeting: *Oral* — *2012*

Exploring the αp-Process with High Energy-Resolution Magnetic Spectrograph — *Stellenbosch, South Africa*
International Workshop on Nuclear Spectroscopy Frontiers at Magnetic Spectrometers: *Oral* — *2012*

Exploring (α,p) Resonances in Nuclei along the αp-Process using the (p,t) Reaction — *Waikoloa Village, HI*
Forth Joint Meeting of the APS Division of Nuclear Physics and the Physical Society of Japan: *Oral* — *2014*

Exploring the αp-Process through High Energy-Resolution (p,t) Measurements — *South Bend, IN*
Joint Institute for Nuclear Astrophysics (JINA) 2012 Frontiers Meeting: *Poster* — *2016*

Indirect Measurements of Influential αp-process Reactions: ^{26}Si(α,p)^{30}S and ^{34}Ar(α,p)^{38}Ca — *South Bend, IN*
Nuclear Structure Laboratory Seminar: *Oral* — *2016*

Indirect Measurements of Influential αp-process Reactions: ^{26}Si(α,p)^{30}S and ^{34}Ar(α,p)^{38}Ca — *Los Alamos, NM*
Nuclear Data Seminar LANSCE Weapons Physics: *Oral*-**Invited** — *2016*

Measurements of gas production reactions ^{56}Fe(n,xα), ^{52}Cr(n,xα), and ^{55}Mn(n,xα) using LENZ a LANSCE — *Shirley, NY*
Cross Section Evaluation Working Group: *Oral* — *2017*

Outreach

Joint Institute of Nuclear Astrophysics PIXE-PAN Summer School — *Notre Dame, IN*
JINA-CEE — *Jun. 2010*

Art to Science Summer Camp — *Notre Dame, IN*
JINA-CEE — *2012 - 2013*

Science Alive Festival — *South Bend, IN*
City of South Bend — *Feb. 2011*

Nuclear Science Badge Advisor — *Notre Dame, IN*
Boy Scouts of America — *2012 - 2016*

Publications

Peer-Reviewed: First Author

1. *'An indirect study of the stellar $^{34}Ar(\alpha,p)^{37}K$ reaction rate through $^{40}Ca(p,t)^{38}Ca$ reaction measurements'* **A.M. Long**, T. Adachi, M. Beard, G. P. A. Berg, Z. Buthelezi, J. Carter, M. Couder, R. J. deBoer, R. W. Fearick, S. V. Förtsch, J. Göres, J. P. Mira, S. H. T. Murray, R. Neveling, P. Papka, F. D. Smit, E. Sideras-Haddad, J. A. Swartz, R. Talwar, I. T. Usman, M. Wiescher, J. J. Van Zyl, and A. Volya *Physical Review C* 95, 055803 (2017)

2. *'A study of α-unbound levels in ^{34}Ar using $^{36}Ar(p,t)^{34}Ar$ reaction measurements and its implication on the astrophysical $^{30}S(\alpha,p)^{33}Cl$ reaction rate'.* **A.M. Long**, T. Adachi, M. Beard, G. P. A. Berg, M. Couder, R. J. deBoer, M. Dozono, J. Görres, H. Fujita, Y. Fujita, K. Hatanaka, D. Ishikawa, T. Kubo, H. Matsubara, Y. Namiki, S. O'Brien, Y. Ohkuma, H. Okamura, H. J. Ong, D. Patel, Y. Sakemi, Y. Shimbara, S. Suzuki, R. Talwar, A. Tamii, A. Volya, T. Wakasa, R. Watanabe, M. Wiescher, R. Yamada, and J. Zenihiro *Submitted to Physics Review C Dec 2017*

Peer-Reviewed: Co-Author

1. *'Determination of $^{20}Ne(p,\gamma)^{21}Na$ cross sections from E_p = 500 - 2000 keV'.* S. Lyons, J. Gorres, R.J. deBoer, E. Stech, Y. Chen, G. Gilardy, Q. Liu, **A.M. Long**, M. Moran, D. Robertson, C. Seymour, B. Vande Kolk, and M. Wiescher *Submitted to Physics Review C Dec 2017*

2. *'Probing astrophysically important states in the ^{26}Mg nucleus to study neutron sources for the s-process'.* Talwar, R., Adachi, T., Berg, G.P.A., Bin, L., Bisterzo, S., Couder, M., DeBoer, R.J., Fang, X., Fujita, H., Fujita, Y., Gorres, J., Hatanaka, K., Itoh, T., Kadoya, T., **Long, A.**, Miki, K., Patel, D., Pignatari, M., Shimbara, Y., Tamii, A., Wiescher, M., Yamamoto, T., Yosoi, M. *Physics Review C* 93 (2016)

3. *'Low energy neutron background in deep underground laboratories'.* Best, A., Gorres, J., Junker, M., Kratz, K.-L., Laubenstein, M., **Long, A.**, Nisi, S., Smith, K., Wiescher, M. *Nuclear Instruments and Methods in Physics Research* 812 (2016)

4. *'(α,γ) cross section measurements in the region of light p nuclei'.* Quinn, S.J., Spyrou, A., Simon, A., Battaglia, A., Bowers, M., Bucher, B., Casarella, C., Couder, M., Deyoung, P.A., Dombos, A.C., Gorres, J., Kontos, A., Li, Q., **Long, A.**, Moran, M., Paul, N., Pereira, J., Robertson, D., Smith, K., Smith, M.K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M. *Physics Review C* 92 (2015)

5. *'Systematic study of (α,γ) reactions for stable nickel isotopes'.* Simon, A., Beard, M., Spyrou, A., Quinn, S.J., Bucher, B., Couder, M., DeYoung, P.A., Dombos, A.C., Gorres, J., Kontos, A., **Long, A.**, Moran, M.T., Paul, N., Pereira, J., Robertson, D., Smith, K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M. *Physics Review C* 92 (2015)

6. *'First Direct Measurement of C12(C12,n)Mg23 at Stellar Energies'.* Bucher, B., Tang, X.D., Fang, X., Heger, A., Almaraz-Calderon, S., Alongi, A., Ayangeakaa, A.D., Beard, M., Best, A., Browne, J., Cahillane, C., Couder, M., Deboer, R.J., Kontos, A., Lamm, L., Li, Y.J., **Long, A.**, Lu, W., Lyons, S., Notani, M., Patel, D., Paul, N., Pignatari, M., Roberts, A., Robertson, D., Smith, K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M., Woosley, S.E. *Physical Review Letters* 114 (2015)

7. *'First application of the γ-summing technique in inverse kinematics'.* Quinn, S.J., Spyrou, A., Simon, A., Battaglia, A., Bowers, M., Bucher, B., Casarella, C., Couder, M., Deyoung, P.A., Dombos, A.C., Greene, J.P., Gorres, J., Kontos, A., Li, Q., **Long, A.**, Moran, M., Paul, N., Pereira, J., Robertson, D., Smith, K., Smith, M.K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M. *Nuclear Instruments and Methods in Physics Research* 575 (2014)

8. *'Measurement of the 58Ni(α,γ)62Zn reaction and its astrophysical impact'.* Quinn, S.J., Spyrou, A., Bravo, E., Rauscher, T., Simon, A., Battaglia, A., Bowers, M., Bucher, B., Casarella, C., Couder, M., Deyoung, P.A., Dombos, A.C., Gorres, J., Kontos, A., Li, Q., **Long, A.**, Moran, M., Paul, N., Pereira, J., Robertson, D., Smith, K., Smith, M.K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M. *Physics Review C* 89 (2014)

9. *'Measurement of the 90,92Zr(p,γ)91,93Nb reactions for the nucleosynthesis of elements near A=90'.* Spyrou, A., Quinn, S.J., Simon, A., Rauscher, T., Battaglia, A., Best, A., Bucher, B., Couder, M., Deyoung, P.A., Dombos, A.C., Fang, X., Gorres, J., Kontos, A., Li, Q., Lin, L.Y., **Long, A.**, Lyons, S., Meyer, B.S., Roberts, A., Robertson, D., Smith, K., Smith, M.K., Stech, E., Stefanek, B., Tan, W.P., Tang, X.D., Wiescher, M. *Physics Review C* 88 (2013)

10. *'Testing the mutually enhanced magicity effect in nuclear incompressibility via the giant monopole resonance in the 204,206,208Pb isotopes'.* Patel, D., Garg, U., Fujiwara, M., Adachi, T., Akimune, H., Berg, G.P.A., Harakeh, M.N., Itoh, M., Iwamoto, C., **Long, A.**, Matta, J.T., Murakami, T., Okamoto, A., Sault, K., Talwar, R., Uchida, M., Yosoi, M. *Physics Letters B* 726 (2013)

11. *'Systematic study of (p,γ) reactions on Ni isotopes'.* Simon, A., Spyrou, A., Rauscher, T., Fröhlich, C., Quinn, S.J., Battaglia, A., Best, A., Bucher, B., Couder, M., Deyoung, P.A., Fang, X., Gorres, J., Kontos, A., Li, Q., Lin, L.-Y., **Long, A.**, Lyons, S., Roberts, A., Robertson, D., Smith, K., Smith, M.K., Stech, E., Stefanek, B., Tan, W.P., Tang, X.D., Wiescher, M. *Physics Review C* 87 (2013)

12. *'SuN: Summing NaI(Tl) gamma-ray detector for capture reaction measurements'.* Simon, A., Quinn, S.J., Spyrou, A., Battaglia, A., Beskin, I., Best, A., Bucher, B., Couder, M.,Deyoung, P.A., Fang, X., Gorres, J., Kontos, A., Li, Q., Liddick, S.N., **Long, A.**, Lyons, S.,Padmanabhan, K., Peace, J., Roberts, A., Robertson, D., Smith, K., Smith, M.K., Stech, E., Stefanek, B., Tan, W.P., Tang, X.D., Wiescher, M. *Nuclear Instruments and Methods in Physics Research* 730 (2013)

Conference Proceedings:

1. *'Recent Nuclear Astrophysics Measurements using the TwinSol Separator'.* Bardayan, D.W., Ahn, T., Allen, J., Becchetti, F.D., Blackmon, J.C., Brodeur, M., Frentz, B., Gupta,Y.K., Hall, M.R., Hall, O., Henderson, S., Hu, J., Kelly, J.M., Kolata, J.J., **Long, A.**, Long, J., Macon,K., Nicoloff, C., O'Malley, P.D., Ostdiek, K., Pain, S.D., Riggins, J., Schultz, B.E., Smith, M., Strauss, S., Torres-Isea, R.O. *Journal of Physics: Conference Series* 703 (2016)

2. *'First direct measurement of 12C(12C,n)23Mg at stellar energies'.* Tang, X.D., Bucher, B., Fang, X., Heger, A., Almaraz-Calderon, S., Alongi, A., Ayangeakaa, A.D., Beard, M., Best, A., Browne, J., Cahillane, C., Couder, M., DeBoer, R.J., Kontos, A., Lamm, L., Li, Y.J., **Long, A.**, Lu, W., Lyons, S., Notani, M., Patel, D., Paul, N., Pignatari, M., Roberts, A., Robertson, D., Smith, K., Stech, E., Talwar, R., Tan, W.P., Wiescher, M., Woosley, S.E. *EPJ Web of Conferences* 109 (2016)

3. *'Constraining the 12C+12C fusion cross section for astrophysics'.* Bucher, B., Fang, X., Tang, X.D., Tan, W.P., Almaraz-Calderon, S., Alongi, A., Ayangeakaa, A.D., Beard, M., Best, A., Browne, J., Cahillane, C., Couder, M., Dahlstrom, E., Davies, P., DeBoer, R., Kontos, A., Lamm, L., **Long, A.**, Lu, W., Lyons, S., Ma, C., Moncion, A., Notani, M., Patel, D., Paul, N., Pignatari, M., Roberts, A., Robertson, D., Smith, K., Stech, E., Talwar, R., Thomas, S., Wiescher, M. *EPJ Web of Conferences* 93 (2015)

4. *'P process overview: (p,γ) and (α,γ) reactions in regular and inverse kinematics'.* Spyrou, A., Quinn, S.J., Simon, A., Battaglia, A., Best, A., Bucher, B., Couder, M., DeYoung, P.A., Dombos, A.C., Fang, X., Gorres, J., Greene, J., Kontos, A., Li, Q., Lin, L.Y., **Long, A.**, Lyons, S., Meyer, B.S., Rauscher, T., Roberts, A., Robertson, D., Smith, K., Smith, M.K., Stech, E., Tan, W.P., Tang, X.D., Wiescher, M. *Proceedings of Science* (2014)

5. *'Searching for the low-energy resonances in the 12C(12C,n)23Mg reaction cross section relevant for s-process nucleosynthesis'.* Bucher, B., Fang, X., Almaraz-Calderon, S., Alongi, A., Ayangeakaa, A.D., Beard, M., Best, A., Browne, J., Cahillane, C., Couder, M., Deboer, R., Kontos, A., **Long, A.**, Lu, W., Lyons, S., Notani, M., Patel, D., Paul, N., Roberts, A., Robertson, D., Smith, K., Stech, E., Talwar, R., Tan, W., Tang, X.D. *Journal*

of Physics: Conference Series 420 (2013)

6. *'Experimental investigation of the 12C+12C fusion at very low energies by direct and indirect methods'.* Fang, X., Bucher, B., Almaraz-Calderon, S., Alongi, A., Ayangeakaa, A.D., Best, A., Berg, G.P.A.,Cahillane, C., Dahlstrom, E., Deboer, R.J., Freer, M., Fujita, H., Fujita, Y., Gorres, J., Hatanaka, K., Howard, A., Itoh, T., Kadoya, T., Kawabata, T., Kolata, J.J., Li, Q., Li, Y.J., Liu, B., **Long, A.**, Lui, Y.-W., Lyons, S., Matsuda, Y., Miki, K., Paul, N., Roberts, A., Smith, M.K., Talwar, R., Tamii, A., Tan, W.P., Tang, X.D., Wiescher, M., Yokota, N. *Journal of Physics: Conference Series* 420 (2013)

7. *'P-process measurements with SuN'.* Spyrou, A., Simon, A., Quinn, S.J., Battaglia, A., Best, A., Beskin, I., Bucher, B., Couder, M., DeYoung, P.A., Fang, X., Gorres, J., Kontos, A., Li, Q., Liddick, S.N., **Long, A.**, Lyons, S., Padmanabhan, K., Peace, J., Roberts, A., Robertson, D., Smith, K., Smith, M.K., Stech, E., Stefanek, B., Tan, W.P., Tang, X.D., Wiescher, M. *AIP Conference Proceedings* 1498 (2012)

8. *'High precision measurements for the rp-process'.* Berg, G.P.A., Fujita, Y., Gorres, J., Harakeh, M.N., Hatanaka, K., **Long, A.**, Neveling, R., Smit, F.D., Talwar, R., Tamii, A., Wiescher, M. *Journal of Physics: Conference Series* 387 (2012)

9. *'Measurements of ISGMR in Sn, Cd and Pb isotopes and the asymmetry of nuclear matter incompressibility'.* BFujiwara, M., Li, T., Patel, D., Garg, U., Berg, G.P.A., Liu, Y., Marks, R., Matta, J., Nayak, B.K., Madhusudhana-Rao, P.V., **Long, A.**, Sault, K., Talwar, R., Hashimoto, H., Nakanishi, K., Okumura, S., Yosoi, M., Ichikawa, M., Itoh, M., Matsuo, R., Terazono, T., Uchida, M., Iwao, Y., Kawabata, T., Murakami, T., Sakaguchi, H., Terashima, S., Yasuda, Y., Zenihiro, J., Akimune, H., Iwamoto, C., Okamoto, A., Kawase, K., Adachi, T., Harakeh, M.N. *AIP Conference Proceedings* 1377 (2011)