

# Curriculum Vitae

## Anna Maria Simon

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### Appointments

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Assistant Professor *July 2014 - present*  
Department of Physics, University of Notre Dame, IN, USA

Postdoctoral Researcher *Sept. 2013 - July 2014*  
Department of Physics, Gottwald Center for the Sciences, University of Richmond, VA, USA

Research Associate *Oct. 2010 - Aug. 2013*  
National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI, USA

### Education

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Ph.D. in Physics *2006 - 2010*  
Jagiellonian University, Kraków, Poland  
• Ph. D. Dissertation: *Correlated Radiative Electron Capture in Ion-Atom Collisions*, (arXiv: 1008.5317)

M.Sc. in Physics *2001 - 2006*  
Jagiellonian University, Kraków, Poland  
• Master's Thesis: *Interactions of Heavy Ions Produced in Penning Source with Gas Targets*

### Research Experience

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University of Notre Dame *Jul. 2014 - present*  
Notre Dame, IN  
• operation of the tandem Van de Graaff accelerator  
• design of a segmented NaI(Tl) summing detector with a digital DAQ  
• network calculations using NucNet Tools

Texas A&M *September 2013*  
College Station, TX  
• Experiments utilizing the STARLiTeR setup

National Superconducting Cyclotron Laboratory, Michigan State University *Oct. 2010 - Aug. 2013*  
East Lansing, MI, USA  
• experiments utilizing the SuN, MONA, GRETINA, SEGA detection systems  
• digital data acquisition system (DDAS)  
• network calculations using NucNet Tools

Western Michigan University *Oct. 2008 - present*  
Kalamazoo, MI, USA  
• operation of the Western Michigan University's Van de Graaff accelerator  
• experiments using Si(Li) x-ray detectors with solid and gas targets

GSI Helmholtzzentrum für Schwerionenforschung GmbH *Aug. 2005 - 2010*  
Darmstadt, Germany  
• experiments utilizing HPGe detectors and gas-jet target on the ESR storage ring

Forschungszentrum Jülich *Aug. 2005*  
Jülich, Germany  
• Summer Student Program

- experiments using Penning ion source, gas chamber and magnetic mass spectrometer dedicated to low energy ion-atom collision experiments

## Recent seminars

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*Where do all the elements come from? Nuclear physics for the stellar p-process*

Nov. 03, 2014, Physics Department Colloquium, Western Michigan University, Kalamazoo, MI

*Where do all the elements come from? Nuclear physics for the stellar p-process*

June 02, 2015, Nuclear Physics Department Colloquium, Jagiellonian University, Krakow, Poland

## Recent conference presentations

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*Low-energy enhancement in gamma-strength function of rare-earth elements*

2015 Annual Fall Meeting of the APS Prairie Section, Nov. 19-21, 2015, South Bend, IN

*Application of the Oslo method to high resolution gamma spectra*

2015 Fall Meeting of the APS DNP, October 28-31, 2015, Santa Fe, NM

*Sensitivity of the p-nuclei production to the nuclear input in type II supernovae*

p-process workshop 2015: status and outlook, June 10-13, 2015, Limassol, Cyprus

*Nuclear input for the p-process*

APS April Meeting 2015, April 11-14, 2015, Baltimore, MD

*Stewardship Science at the University of Richmond*

2014 Stewardship Science Academic Programs (SSAP) Symposium, February 19-20, 2014, North Bethesda, MD

## Teaching

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PHYS 60070 - Computing and data analysis for physicists

*Fall 2014, Fall 2015*

Graduate course in C++ and ROOT data analysis

PHYS 10310 - General Physics I

*Spring 2015, Spring 2016*

Introductory physics course for engineers

## Outreach

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REU Program

*Summer 2015*

Supervision of Brendan Murphy

- Lecture for REU program participants: *Where do all the elements come from? Overview of the stellar nucleosynthesis processes*, July 22, 2015
- October 16, 2015 Presentation for high school students with HS on Air event organized by JINA: "Where do the elements come from? Nucleosynthesis in stellar environments"
- Graduate School Information Fair during the 2015 Fall Meeting of the APS DNP, October 28-31, 2015, Santa Fe, NM
- February 6, 2016 JINA at Physics Live at St Joseph library, South Bend, IN

## Other

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Member of the American Physical Society

*Oct. 2008 - present*

Journal Referee

*2011 - present*

Physical Review Letters, Physical Review C, Nuclear Physics A

PH.D. Defense Committee Member for James Matta  
Department of Physics, University of Notre Dame

Jul. 13, 2015

Faculty Senate, College of Science Representative  
University of Notre Dame

Sep. 2015 - present

Recruitment Committee  
Department of Physics, University of Notre Dame

Sep. 2014 - present

Computer Committee  
Department of Physics, University of Notre Dame

Sep. 2014 - present

## Publications - refereed journals - since 2010

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- [1] X. Huyan, O. Naviliat-Cuncic, D. Bazin, A. Gade, M. Hughes, S. Liddick, K. Minamisono, S. Noji, S. V. Paulauskas, A. Simon, P. Voytas, and D. Weisshaar. *Toward a measurement of weak magnetism in  $6\text{He}$  decay*. *Hyperfine Interactions*, **237** (2016) 1
- [2] A. Simon, M. Guttormsen, A. C. Larsen, C. W. Beausang, P. Humby, J. T. Burke, R. J. Casperson, R. O. Hughes, T. J. Ross, J. M. Allmond, R. Chyzh, M. Dag, J. Koglin, E. McCleskey, M. McCleskey, S. Ota, and A. Saastamoinen. *First observation of low-energy  $\gamma$ -ray enhancement in the rare-earth region*. *Phys. Rev. C*, **93** (2016) 034303
- [3] A. Gumberidze, A. Surzhykov, D. Thorn, C. Fontes, B. Najjari, A. Voitkiv, S. Fritzsche, D. Banas, H. Beyer, W. Chen, R. DuBois, S. Geyer, R. Grisenti, S. Hagmann, M. Hegewald, S. Hess, C. Kozhuharov, R. Maertín, N. Petridis, R. Reuschl, A. Simon, U. Spillmann, M. Trassinelli, S. Trotsenko, G. Weber, D. Winters, N. Winters, D. Yu, and T. Stoehlker. *Ground-state excitation of heavy highly-charged ions*. *Journal of Physics B: Atomic, Molecular and Optical Physics*, **48** (2015) 144006
- [4] P. Humby, A. Simon, C. W. Beausang, T. J. Ross, R. O. Hughes, J. T. Burke, R. J. Casperson, J. Koglin, S. Ota, J. M. Allmond, M. McCleskey, E. McCleskey, A. Saastamoinen, R. Chyzh, M. Dag, K. Gell, T. Tarlow, and G. Vyas. *Improved measurement of the half-life of the  $J_{\pi}=8^{-}$  nuclear isomer  $^{152m_2}\text{Eu}$* . *Physical Review C*, **91** (2015) 024322
- [5] E. Klopfer, J. Brett, P. DeYoung, A. Dombos, S. Quinn, A. Simon, and A. Spyrou. *SuNSCREEN: A cosmic-ray veto detector for capture-reaction measurements*. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **788** (2015) 5
- [6] F. Naqvi, S. J. Quinn, A. Spyrou, A. Battaglia, M. Couder, P. A. DeYoung, A. C. Dombos, X. Fang, J. Görres, A. Kontos, Q. Li, S. Lyons, D. Robertson, A. Simon, K. Smith, M. K. Smith, E. Stech, W. P. Tan, and M. Wiescher. *Proton capture cross section of  $^{72}\text{Ge}$  and astrophysical implications*. *Physical Review C*, **92** (2015) 025804
- [7] S. B. Schwartz, C. Wrede, M. B. Bennett, S. N. Liddick, D. Pérez-Loureiro, A. Bowe, A. A. Chen, K. A. Chipps, N. Cooper, D. Irvine, E. McNeice, F. Montes, F. Naqvi, R. Ortez, S. D. Pain, J. Pereira, C. Prokop, J. Quaglia, S. J. Quinn, J. Sakstrup, M. Santia, S. Shanab, A. Simon, A. Spyrou, and E. Thiagalingam. *Observation of Doppler broadening in  $\beta$ -delayed proton- $\gamma$  decay*. *Phys. Rev. C*, **92** (2015) 031302
- [8] A. Simon, M. Beard, A. Spyrou, S. J. Quinn, B. Bucher, M. Couder, P. A. DeYoung, A. C. Dombos, J. Görres, A. Kontos, A. Long, M. T. Moran, N. Paul, J. Pereira, D. Robertson, K. Smith, E. Stech, R. Talwar, W. P. Tan, and M. Wiescher. *Systematic study of  $(\alpha, \gamma)$  reactions for stable nickel isotopes*. *Physical Review C*, **92** (2015) 025806
- [9] C. Wrede, M. Bennett, S. Liddick, D. Bardayan, A. Bowe, B. Brown, A. Chen, K. Chipps, N. Cooper, C. Fry, B. Glassman, D. Irvine, J. José, C. Langer, N. Larson, E. McNeice, Z. Meisel, F. Montes, F. Naqvi, S. Pain, P. O'Malley, R. Ortez, W. Ong, J. Pereira, D. Pérez-Loureiro, C. Prokop, J. Quaglia, S. Quinn, M. Santia, H. Schatz, S. Schwartz, A. Simon, S. Shanab, A. Spyrou, S. Suchyta, E. Thiagalingam, P. Thompson, and M. Walters.  *$\beta$  Decay as a Probe of Explosive Nucleosynthesis in Classical Novae*. *Physics Procedia*, **66** (2015) 532

- [10] C. Langer, F. Montes, A. Aprahamian, D. Bardayan, D. Bazin, B. Brown, J. Browne, H. Crawford, R. Cyburt, C. Domingo-Pardo, A. Gade, S. George, P. Hosmer, L. Keek, A. Kontos, I. Lee, A. Lemasson, E. Lunderberg, Y. Maeda, M. Matos, Z. Meisel, S. Noji, F. Nunes, A. Nystrom, G. Perdikakis, J. Pereira, S. Quinn, F. Recchia, H. Schatz, M. Scott, K. Siegl, A. Simon, M. Smith, A. Spyrou, J. Stevens, S. Stroberg, D. Weisshaar, J. Wheeler, K. Wimmer, and R. Zegers. *Determining the  $r$ -Process Flow through  $^{56}\text{Ni}$ : Resonances in  $^{57}\text{Cu}(p, \gamma)^{58}\text{Zn}$  Identified with GRETINA*. Physical Review Letters, **113** (2014) 32502
- [11] S. Quinn, A. Spyrou, E. Bravo, T. Rauscher, A. Simon, A. Battaglia, M. Bowers, B. Bucher, C. Casarella, M. Couder, P. DeYoung, A. Dombos, J. Görres, A. Kontos, Q. Li, A. Long, M. Moran, N. Paul, J. Pereira, D. Robertson, K. Smith, M. Smith, E. Stech, R. Talwar, W. Tan, and M. Wiescher. *Measurement of the  $^{58}\text{Ni}(\alpha, \gamma)^{62}\text{Zn}$  reaction and its astrophysical impact*. Physical Review C, **89** (2014) 54611
- [12] S. Quinn, A. Spyrou, A. Simon, A. Battaglia, M. Bowers, B. Bucher, C. Casarella, M. Couder, P. DeYoung, A. Dombos, J. Greene, J. Görres, A. Kontos, Q. Li, A. Long, M. Moran, N. Paul, J. Pereira, D. Robertson, K. Smith, M. Smith, E. Stech, R. Talwar, W. Tan, and M. Wiescher. *First application of the  $\gamma$ -summing technique in inverse kinematics*. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, **757** (2014) 62
- [13] A. Spyrou, S. Liddick, A. Larsen, M. Guttormsen, K. Cooper, A. Dombos, D. Morrissey, F. Naqvi, G. Perdikakis, S. Quinn, T. Renstrom, J. Rodriguez, A. Simon, C. Sumithrarachchi, and R. Zegers. *Novel technique for Constraining  $r$ -Process ( $n, \gamma$ ) Reaction Rates*. Physical Review Letters, **113** (2014) 232502
- [14] S. Suchyta, S. N. Liddick, Y. Tsunoda, T. Otsuka, M. B. Bennett, A. Chemey, M. Honma, N. Larson, C. J. Prokop, S. J. Quinn, N. Shimizu, A. Simon, A. Spyrou, V. Tripathi, Y. Utsuno, and J. M. VonMoss. *Shape coexistence in  $^{68}\text{Ni}$* . Physical Review C, **89** (2014) 021301
- [15] A. Simon, J. Fallis, A. Spyrou, A. M. Laird, C. Ruiz, L. Buchmann, B. R. Fulton, D. Hutcheon, L. Martin, D. Ottewell, and A. Royas. *Radiative capture reactions with heavy beams: extending the capabilities of DRAGON*. The European Physical Journal A, **49** (2013) 1
- [16] A. Simon, S. J. Quinn, A. Spyrou, A. Battaglia, I. Beskin, A. Best, B. Bucher, M. Couder, P. A. DeYoung, X. Fang, J. Görres, A. Kontos, Q. Li, S. N. Liddick, A. Long, S. Lyons, K. Padmanabhan, J. Peace, A. Roberts, D. Robertson, K. Smith, M. K. Smith, E. Stech, B. Stefanek, W. P. Tan, X. D. Tang, and M. Wiescher. *SuN: Summing NaI(Tl) Gamma-Ray Detector for Capture Reaction Measurements*. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, **703** (2013) 16
- [17] A. Simon, A. Spyrou, T. Rauscher, C. Fröhlich, S. Quinn, A. Battaglia, A. Best, B. Bucher, M. Couder, P. DeYoung, X. Fang, J. Görres, A. Kontos, Q. Li, L.-Y. Lin, A. Long, S. Lyons, A. Roberts, D. Robertson, K. Smith, M. Smith, E. Stech, B. Stefanek, W. Tan, X. Tang, and M. Wiescher. *Systematic study of ( $p, \gamma$ ) reactions on Ni isotopes*. Physical Review C, **87** (2013) 055802
- [18] M. B. Bennett, C. Wrede, K. A. Chipps, J. José, S. N. Liddick, M. Santia, A. Bowe, A. A. Chen, N. Cooper, D. Irvine, E. McNeice, F. Montes, F. Naqvi, R. Ortez, S. D. Pain, J. Pereira, C. Prokop, J. Quaglia, S. J. Quinn, S. B. Schwartz, S. Shanab, A. Simon, A. Spyrou, and E. Thiagalingam. *Classical-Nova Contribution to the Milky Way's  $^{26}\text{Al}$  Abundance: Exit Channel of the Key  $^{25}\text{Al}(p, \gamma)^{26}\text{Si}$  Resonance*. Physical Review Letters, **111** (2013) 232503
- [19] A. Gumberidze, D. Thorn, C. Fontes, B. Najjari, H. Zhang, A. Surzhykov, A. Voitkiv, S. Fritzsche, D. Banaś, H. Beyer, W. Chen, R. DuBois, S. Geyer, R. Grisenti, S. Hagmann, M. Hegewald, S. Hess, P. Indelicato, C. Kozhuharov, R. Märtin, I. Orban, N. Petridis, R. Reuschl, A. Simon, U. Spillmann, A. Surzhykov, M. Trassinelli, G. Weber, D. Winters, N. Winters, D. Yu, and T. Stöhlker. *Electron- and Proton-Impact Excitation of Hydrogenlike Uranium in Relativistic Collisions*. Physical Review Letters, **110** (2013) 213201
- [20] N. Larson, S. Liddick, M. Bennett, A. Bowe, A. Chemey, C. Prokop, A. Simon, A. Spyrou, S. Suchyta, S. Quinn, S. Tabor, P. Tai, V. Tripathi, and J. VonMoss. *High efficiency beta-decay spectroscopy using a planar germanium double-sided strip detector*. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment
- [21] S. Quinn, A. Spyrou, A. Simon, A. Battaglia, M. Couder, P. DeYoung, A. Dombos, X. Fang, J. Görres, A. Kontos, Q. L. and S. Lyons, B. Meyer, G. F. Peaslee, D. Robertson, K. Smith, M. Smith, E. Stech, W. Tan, X. Tang,

and M. Wiescher. *Probing the production mechanism of the light p-process nuclei*. Physical Review C, **88** (2013) 011603

- [22] A. Spyrou, S. J. Quinn, A. Simon, T. Rauscher, A. Battaglia, A. Best, B. Bucher, M. Couder, P. A. DeYoung, A. C. Dombos, X. Fang, J. Görres, A. Kontos, Q. Li, L. Y. Lin, A. Long, S. Lyons, B. S. Meyer, A. Roberts, D. Robertson, K. Smith, M. K. Smith, E. Stech, B. Stefanek, W. P. Tan, X. D. Tang, and M. Wiescher. *Measurement of  $^{90,92}\text{Zr}(p,\gamma)^{91,93}\text{Nb}$  reaction cross sections*. Physical Review C, **88** (2013) 045802
- [23] Z. Kohley, J. Snyder, T. Baumann, G. Christian, P. DeYoung, J. Finck, R. Haring-Kaye, M. Jones, E. Lunderberg, B. Luther, S. Mosby, A. Simon, J. Smith, A. Spyrou, S. Stephenson, and M. Thoennessen. *Unresolved Question of the  $^{10}\text{He}$  Ground State Resonance*. Physical Review Letters, **109** (2012) 252301
- [24] A. Gumberidze, T. Stöhlker, D. Banaś, H. F. Beyer, C. Brandau, H. Bräuning, S. Geyer, S. Hagmann, S. Hess, P. Indelicato, P. Jagodziński, C. Kozhuharov, A. Kumar, D. Liesen, R. Märtin, R. Reuschl, S. Salem, A. Simon, U. Spillmann, M. Trassinelli, S. Trotsenko, G. Weber, and D. F. A. Winters. *Precision Studies of Fundamental Atomic Structure with Heaviest Few-Electron Ions*. Hyperfine Interactions, **199** (2011) 59
- [25] D. Thorn, A. Gumberidze, S. Trotsenko, D. Banaś, H. Beyer, C. Bostock, I. Bray, W. Chen, R. DuBois, C. Fontes, S. Fritzsche, D. Fursa, R. Grisenti, S. Geyer, S. Hagmann, S. Hess, M. Hegewald, C. Kozhuharov, R. Märtin, I. Orban, N. Petridis, R. Reuschl, A. Simon, U. Spillmann, A. Surzhykov, M. Trassinelli, G. Weber, D. Winters, N. Winters, H. Zhang, and T. Stöhlker. *Polarization and Anisotropic Emission of K-shell Radiation from Heavy Few Electron Ions*. Canadian Journal of Physics, **89** (2011) 513
- [26] A. Simon, A. Warczak, T. ElKafrawy, and J. A. Tanis. *Radiative Double Electron Capture in Collisions of  $\text{O}^{8+}$  Ions with Carbon*. Physical Review Letters, **104** (2010) 123001
- [27] S. Trotsenko, A. Kumar, A. V. Volotka, D. Banaś, H. F. Beyer, H. Bräuning, S. Fritzsche, A. Gumberidze, S. Hagmann, S. Hess, P. Jagodziński, C. Kozhuharov, R. Reuschl, S. Salem, A. Simon, U. Spillmann, M. Trassinelli, L. C. Tribedi, G. Weber, D. Winters, and T. Stöhlker. *Spectral Shape of the Two-Photon Decay of the  $2^1S_0$  State in He-Like Tin*. Physical Review Letters, **104** (2010) 33001