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EDUCATION:

Ph.D. in Physics, University of Colorado, Boulder **1990**

B.S. in Physics, University of Massachusetts, Amherst **1983**

PROFESSIONAL EXPERIENCE:

Professor, Department of Physics, Western Michigan University, Kalamazoo MI, 2008-present.

Associate Professor, Department of Physics, Western Michigan University, Kalamazoo MI, 2000-2008.

Assistant Professor, Department of Physics, Western Michigan University, Kalamazoo MI, 1995-2000.

Department of Energy Postdoctoral Research Fellow, Department of Physics, Auburn University, Auburn AL, 1992-1995.

Research Assistant, Joint Institute for Laboratory Astrophysics, University of Colorado, Boulder CO, 1985-90.

Teaching Assistant, Department of Physics, University of Colorado, Boulder CO, 1983-85.

Research Assistant, National Oceanic and Atmospheric Administration, Boulder CO, 1984.

Distinguished Faculty Scholar Award, Western Michigan University

Fellow of the American Physical Society (DAMOP):

For advancing our fundamental understanding in the photoionization, spectra, and opacities of atomic ions in astrophysical plasmas.

44 Invited Talks, \$3.5 million in Research Funding, 135 Refereed Publications, and 165 Contributed Abstracts.

INVITED TALKS:

- T. W. Gorczyca**, *Atomic Physics in X-ray Absorption Astrophysics*, Institute des Sciences Moleculaires d'Orsay (ISMO), Orsay, France, July 15, 2021.
- T. W. Gorczyca**, *K-Shell Photoabsorption along the Silicon Isoelectronic Sequence*, 238th Meeting of the American Astronomical Society, Laboratory Astrophysics Division (Virtual), June 9, 2021.
- T. W. Gorczyca**, *X-ray Absorption by Atomic and Multi-Particle Gases*, AtomDB Workshop and Advanced Spectroscopy School, Harvard-Smithsonian Center for Astrophysics, Cambridge MA, August 3, 2020.
- T. W. Gorczyca**, *A Consistent X-ray Photoabsorption Spectrum for Interstellar Atomic Gas and Silicate Dust*, NASA APRA High-Energy Astrophysics PI Program Review, Washington, D.C., November 19-20, 2019.
- T. W. Gorczyca**, *X-ray Absorption Models for Interstellar O, Si, and Fe: Atomic vs. Molecular/Solid-State Absorbers*, SouthEast Laboratory Astrophysics Community Workshop, Clemson University, Clemson, S.C., May 15, 2019.
- T. W. Gorczyca**, *A Consistent X-ray Photoabsorption Spectrum for Interstellar Atomic Gas and Silicate Dust*, NASA APRA High-Energy Astrophysics PI Program Review, Washington, D.C., December 4-5, 2018.
- T. W. Gorczyca**, *R-matrix Inner-Shell Atomic Photoabsorption Methods and Extension to Quantemol Molecular Calculations*, Quantemol Workshop, University College London, UK, September 14, 2018.
- T. W. Gorczyca**, *A Consistent X-ray Photoabsorption Spectrum for Interstellar Atomic Gas and Silicate Dust*, NASA APRA High-Energy Astrophysics PI Program Review, Washington, D.C., December 5-6, 2017.
- T. W. Gorczyca**, *X-ray Absorption by Interstellar Atomic Gases near the K-edges of C, O, Ne, Mg, and Si, and the L-edge of Fe*, AtomDB Workshop 2017, Athens, GA November 2-3, 2017.
- T. W. Gorczyca**, *Atomic Physics in X-ray Absorption Astrophysics*, Department of Physics Colloquium, Missouri University of Science and Technology, Rolla, MO, November 3, 2016.
- T. W. Gorczyca**, *Oxygen K-Edge Cross Sections: Comparisons between Theory, Lab, and Observations*, Chandra High Energy Transmission Grating (HETG) Group, MIT Kavli Institute for Astrophysics and Space Research, Cambridge, MA, June 2, 2016.
- T. W. Gorczyca**, *X-ray Absorption Spectroscopy in Atoms, and Extensions to Molecular and Solid-State Environments*, workshop entitled "Charge Exchange X-rays in Current and Future Astrophysical Research: To The Memory Of Alex Dalgarno", Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, April 15, 2015.

- T. W. Gorczyca**, *X-ray Absorption Spectroscopy in the Laboratory and in the Cosmos*, Butler University Physics and Astronomy Colloquium, Indianapolis, IN, April 8, 2015.
- T. W. Gorczyca**, *Near-Threshold Phenomena in Dielectronic Recombination of S^{2+} and in Vibrationally-Resolved Photoionization of N_2* , SouthEast Laboratory Astrophysics Community Workshop entitled “Laboratory Astrophysics for Beyond Hubble: Fundamental Processes from the NIR to the FUV”, Pine Mountain, GA, March 23, 2015.
- T. W. Gorczyca**, *Comprehensive X-ray Absorption Models for Atomic Oxygen and Neon*, 2014 American Astronomical Society Meeting: Bridging Laboratory & Astrophysics, Boston, MA, June 2, 2014.
- T. W. Gorczyca**, *Photoionization of Confined Atoms: Endofullerenes and Beyond*, Université de Paris Sud Laboratoire Aimé Cotton, Orsay, France, March 28, 2014.
- T. W. Gorczyca**, *Comprehensive X-Ray Absorption Models for Oxygen and Neon*, One Day Symposium on Laboratory Astrophysics at the CfA, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, April 26, 2013.
- T. W. Gorczyca**, *RMPS Calculations for atoms in C60*, The Atomic and Molecular Winter Workshop, Auburn University, Auburn, AL January 3, 2013.
- T. W. Gorczyca**, *DR Calculations of M-Shell Ions*, 2012 ADAS Workshop, Le Commissariat à l’Energie Atomique (CEA), Cadarache, France, September 24, 2012.
- T. W. Gorczyca**, *DR/Innershell Atomic Modeling*, AtomDB Work Week and Workshop 2012, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, August 10, 2012.
- T. W. Gorczyca**, *K-Shell Photoabsorption of the Carbon Isoelectronic Sequence*, The Atomic and Molecular Winter Workshop, Callaway Gardens, GA January 7-9, 2010.
- T. W. Gorczyca**, *Inner-Shell Photodetachment Dynamics*, Advanced Light Source (ALS) Workshop, Berkeley, CA, October 14, 2008.
- T. W. Gorczyca**, *The Role of Theoretical Atomic Physics in Astrophysical Plasma Modeling*, 2008 American Astronomical Society Meeting, St. Louis, MO, June 2008.
- T. W. Gorczyca**, *Atoms in Astrophysics*, Physics Colloquium, Kellogg Community College, Battle Creek, MI, April 2007.
- T. W. Gorczyca**, *Atoms in Astrophysics*, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, August 2006.
- T. W. Gorczyca**, *Atoms in Astrophysics*, University of Uppsala, Sweden, April 2005.
- T. W. Gorczyca**, *Atoms in Astrophysics*, Queen’s University, Belfast, UK, March 2005.
- T. W. Gorczyca**, *Production and Decay of Atomic Inner-Shell Vacancy States*, “X-ray Diagnostics of Astrophysical Plasmas: Theory, Experiment, and Observation” Workshop, Cambridge, Massachusetts, November 15-17, 2004.

- T. W. Gorczyca**, *Improving Ionization Balance Calculations: Recent Theoretical Advances in Electron-Ion Recombination Data*, 2004 American Astronomical Society Meeting, Denver, CO, June 2004.
- T. W. Gorczyca**, *Autoionization in Astrophysics*, 2004 American Physical Society Meeting, Denver, CO, May 2004.
- T. W. Gorczyca**, *Inner-Shell Photodetachment Dynamics*, Indo-US Workshop on Radiation Physics, University of North Bengal, Darjeeling, India, March, 2004.
- T. W. Gorczyca**, *Inner-Shell Photodetachment Dynamics*, Atomic Physics Colloquium, University of Notre Dame, South Bend, IN, September, 2003.
- T. W. Gorczyca**, *Inner-Shell Photodetachment Dynamics*, 2003 American Physical Society Division of Atomic, Molecular, and Optical Physics Meeting, University of Colorado, Boulder, CO, May 23, 2003.
- T. W. Gorczyca**, *Assessment of the Fluorescence and Auger Data Base used in Plasma Modeling*, 2003 American Astronomical Society Division of High Energy Astrophysics, McGill University, March 2003.
- T. W. Gorczyca**, *Radiative, Relativistic, and Electric Field Effects in Doubly-Excited Helium Rydberg States*, International Seminar on Photoionization in Atom, Institute for Chemical Research, Kyoto University, Uji, Kyoto, Japan, August 19, 2002.
- T. W. Gorczyca**, *Radiative, Relativistic, and Electric Field Effects in Doubly-Excited Helium Rydberg States*, Fano Memorial Symposium, "Resonances and Reflections: Profiles of Ugo Fano's Physics and Its Influence." Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 24, 2002.
- T. W. Gorczyca**, *Superelastic and Resonant-Elastic Scattering of Quasifree Electrons from He-Like Ions*, 2002 American Physical Society Division of Atomic, Molecular, and Optical Physics Meeting, College of William and Mary, Williamsburg, VA, May 3, 2002.
- T. W. Gorczyca**, *Competing Decay Pathways in Photoexcited Rydberg Spectra*, Workshop on Complex Phenomena Involving Rydberg Atoms and Molecules, Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, April 26, 2001.
- T. W. Gorczyca**, *New Characterizations of Doubly-Excited Atomic States*, Colloquium, Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, November, 2, 2000.
- T. W. Gorczyca**, *Unusual Resonance Properties Observed Through High-Resolution Synchrotron Studies*, Advanced Light Source, Berkeley, CA, 10/00.
- T. W. Gorczyca**, *The R-matrix with Pseudostates Method*, Goddard Space Flight Center, 12/99.

- T. W. Gorczyca**, *Multichannel Photorecombination and Photoionization Spectroscopy of Complex Atomic Systems*, 15th International Conference on the Application of Accelerators in Research and Industry, Denton, TX, 11/7/98.
- T. W. Gorczyca**, *Multichannel Photorecombination and Photoionization Spectroscopy of Complex Atomic Systems*, Joint Institute for Laboratory Astrophysics, University of Colorado, Boulder, 10/29/98.
- T. W. Gorczyca**, N. R. Badnell, F. Robicheaux, and M. S. Pindzola, *Non-Perturbative vs. Perturbative Methods for Photorecombination*, 11th APS Topical Conference on Atomic Processes in Plasmas, Auburn University, Auburn, AL, 3/25/98.

RESEARCH GRANTS:

- T. W. Gorczyca (PI)**, NASA Astrophysics Research and Analysis Program, for project entitled *Thermal and Magnetic Field Effects of Stellar Plasmas and Astronomical Observables*, for period 1/1/2022-12/31/2023.
- T. W. Gorczyca (PI)** and M. A. Bautista, NASA Astrophysics Research and Analysis Program, for project entitled *A Consistent X-ray Photoabsorption Spectrum for Interstellar Atomic Gas and Silicate Dust*, funded \$503,151 for period 1/1/2017-12/31/2022.
- M. A. Bautista (PI), **T. W. Gorczyca (CoI)**, T. R. Kallman, C. Mendoza, C. P. Ballance, and M. Bergemann, NSF Division of Astronomical Sciences (AST) Program, for project entitled *From Stars to Active Galactic Nuclei. Phototization, Photoexcitation, Opacities, and Spectra of Low Ionization Fe-peak Species*, funded \$600,000 for period 1/1/2014-12/31/2016.
- T. W. Gorczyca (PI)**, NASA Chandra Project, for project entitled *Comprehensive X-Ray Absorption Models for Oxygen and Neon*, funded \$60,000 for period 1/1/2014-12/31/2014.
- T. W. Gorczyca (PI)** and K. T. Korista, NASA Astrophysics Research and Analysis Program, for project entitled *Improved Simulations of Astrophysical Plasmas: Computation of New Atomic Data*, funded \$280,000 for period 4/1/2011-3/31/2014.
- T. W. Gorczyca (PI)** and K. T. Korista, NASA Astrophysics Research and Analysis Program, for project entitled *Improved Simulations of Astrophysical Plasmas: Computation of New Atomic Data*, funded \$81,820 for period 4/1/2010-3/31/2011.
- T. W. Gorczyca (PI)** and K. T. Korista, NASA Astrophysics Research and Analysis Program, for project entitled *Improved Simulations of Astrophysical Plasmas: Computation of New Atomic Data*, funded \$335,000 for period 1/1/2007-12/31/2009.
- T. W. Gorczyca (PI)**, NASA Chandra Project, *K-Shell Photoabsorption Studies for Modeling Interstellar Medium Spectra*, funded \$50,000 for period 1/1/2009-12/31/2009.
- T. W. Gorczyca (PI)**, NASA Solar and Heliospheric Research and Technology Program, for project entitled *Calculations of High Temperature Dielectronic Recombination Rate Coefficients in Support of NASA's Sun-Earth Connection Program*, funded \$20,000 for period 2/1/2008-12/31/2008.

- T. W. Gorczyca (PI)**, NASA Solar and Heliospheric Research and Technology Program, for project entitled *Calculations of High Temperature Dielectronic Recombination Rate Coefficients in Support of NASA's Sun-Earth Connection Program*, funded \$450,000 for period 2/1/2005-1/31/2008.
- T. W. Gorczyca (PI)** and K. T. Korista, NASA Astrophysics Research and Analysis Program, for project entitled *Improved Simulations of Astrophysical Plasmas: Computation of New Atomic Data*, funded \$450,000 for period 1/1/2004-12/31/2006.
- T. W. Gorczyca (PI)** and K. T. Korista, NASA Space Astrophysics Research and Analysis, for project entitled *Improved Simulations of Astrophysical Plasmas: Computation of New Atomic Data*, funded \$230,000 for period 12/00-11/03.
- D. W. Savin, **T. W. Gorczyca (Co-I)**, and J. C. Raymond, NASA Program in Solar Physics Research and Analysis, for project entitled *Unraveling the Physical Conditions of the Solar Atmosphere: Experimental and Theoretical Atomic Rates for Ions of Neon and Magnesium*, for period 2/00-1/03. Funded \$386,206.
- D. W. Savin, **T. W. Gorczyca (Co-I)**, and K. T. Korista, National Aeronautic and Space Administration (NASA) Space Astrophysics Research and Analysis, for project entitled *Measurements, Calculations, and Astrophysical Implications of New Low Temperature Dielectronic Recombination Rates for Modeling Photoionized Cosmic Plasmas*, for period 12/99-9/02. Funded \$353,040.
- M. S. Pindzola, **T. W. Gorczyca (Co-I)**, and Z. Altun, National Science Foundation International US-Turkey Cooperative Research, for project entitled *Many Body Dynamics in Open Shell Atoms and Ions*, for period 7/00-6/02. Funded \$9,700.
- T. W. Gorczyca**, Faculty Research and Creative Activities Support Fund (FRACASF), Western Michigan University, for project entitled *Many-Body Dynamics in Photon-Matter Spectroscopy*. Funded \$5,000 for period 6/1/99–5/31/00.
- T. W. Gorczyca**, Michigan Space Grant Consortium (NASA), for project entitled *Theoretical Atomic Physics for Astronomical Galactic Studies*. Awarded \$4,000 for the period 6/97-5/98.

REFEREED PUBLICATIONS:

138. E. Gatuzz, M. Parr, M. F. Hasoglu, **T. W. Gorczyca**, S. Mandel, K. Mori, K. Matsunaga, H. Uchiyama, M. Nobukawa, M. Shidatsu, *XRISM spectroscopy of a crowded Galactic center region – III. S, Ar and Ca ISM Absorption Features in the spectrum of MAXI J1744-294*, Astronomy and Astrophysics, in press, arxiv.org/abs/2603.27234 (2026).
137. **T. W. Gorczyca**, and S. T. Manson, *Photoionization time delay of open-shell atoms: Na 3s near the Cooper minimum*, Phys. Rev. A **113**, 023103 (2026).
136. J.-P. Mosnier, E. T. Kennedy, D. Cubaynes, J. M. Bizau, S. Guilbad, C. Blancard, B. M. McLaughlin, M. F. Hasoglu, and **T. W. Gorczyca**, *L-shell photoionisation cross sections in the S⁺, S²⁺, S³⁺ isonuclear sequence*, J. Phys. B **58**, 075002 (2025).

135. E. Gatuzz, **T. W. Gorczyca**, M. F. Hasoglu, J.A. Garcia, and T. R. Kallman, *Argon X-Ray Absorption in the Local ISM*, Astronomy and Astrophysics, submitted (2024).
134. *T. W. Gorczyca*, C. P. Ballance, M. F. Hasoglu, N. R. Badnell, S. T. Manson, and D. W. Savin, *Photoionization of Atomic Sodium Near Threshold*, Phys. Rev. A **109**, 053102 (2024).
133. E. Gatuzz, **T. W. Gorczyca**, M. F. Hasoglu, E. Constantini, J.A. Garcia, and T. R. Kallman, *Sulphur X-Ray Absorption in the Local ISM*, Monthly Notices of the Royal Astronomical Society **527**, 1648 (2024).
132. J.-P. Mosnier, E. T. Kennedy, J. M. Bizau, D. Cubaynes, S. Guilbad, C. Blancard, M. F. Hasoglu, and **T. W. Gorczyca**, *L-Shell Photoionization of Magnesium-Like Ions with New Results for $C\ell^5+$* , Atoms **4**, 66 (2023).
131. S. H. Southworth, S. Li, D. Kouletianos, G. Doumy, L. Young, D. A. Walko, R. Puttner, D. Ceolin, R. Guillemin, I. Ismail, O. Travnikova, M. N. Piancastelli, M. Simon, S. T. Manson, and **T. W. Gorczyca**, *Energy Variation of Double K-shell Photoionization of Ne*, Phys. Rev. A **107**, 023110 (2023).
130. J. Costello, P. Deshmukh, **T. W. Gorczyca**, A. Kheifets, A. Msezane, and U. Ueda, *Preface for Advances in Atomic, Molecular, and Optical Sciences (2020)*, Phys. Scr. **97**, 090201 (2022).
129. J.-P. Mosnier, E. T. Kennedy, D. Cubaynes, J. M. Bizau, S. Guilbad, M. F. Hasoglu, C. Blancard, and **T. W. Gorczyca**, *L-Shell Photoionization of Mg-Like S^{4+} in Ground and Metastable States: Experiment and Theory*, Phys. Rev. A **106**, 033113 (2022).
128. M. F. Hasoglu, **T. W. Gorczyca**, and S. T. Manson, *K-Shell Photoabsorption in Si^{11+} : Relativistic Contributions via Breit-Pauli R-matrix Calculations*, Phys. Scr. **96**, 124024 (2021).
127. **T. W. Gorczyca**, *Oleg Zatsarinny: Expert Atomic Physicist, Kind Man*, Atoms **9**, 107 (2021).
126. P. Paduka, H.-L. Zhou, **T. W. Gorczyca**, and S. T. Manson, *Inner-shell photoionization of free and confined Mg in the region of the 2p thresholds*, J. Phys. B **54**, 195201 (2021).
125. **T. W. Gorczyca**, C. P. Ballance, S. T. Manson, D. Kilcoyne, and W. C. Stolte, *Double photoionization of atomic oxygen: Feshbach resonances in the two-electron continuum*, Phys. Scr. **96**, 064005 (2021).
124. **T. W. Gorczyca**, and S. T. Manson, *Photoionization of open-shell nitrogen confined in C_{60}* , J. Phys. B **54**, 035202 (2021).
123. C. Mendoza, M. A. Bautista, J. Deprince, J. A. Garcia, E. Gatuzz, **T. W. Gorczyca**, T. R. Kallman, P. Palmeri, P. Quinet, and M. C. Witthoef, *The XSTAR Atomic Database*, Atoms **9**, 12 (2021).

122. L. Fernández, A. C. Conroy, C. P. Ballance, N. R. Badnell, D. M. Mitnik, **T. W. Gorczyca**, and M. S. Seaton, *Time-Dependent R-matrix Atomic Electron-Impact Code*, Computer Physics Communications, **256**, 107489 (2020).
121. **T. W. Gorczyca** and S. T. Manson, *Outer-Shell Photodetachment of Li^- near Inner-Shell Thresholds*, Journal of Physics B, **53**, 195203 (2020).
120. **T. W. Gorczyca** and S. T. Manson, *Inner-Shell Photodetachment of Na^- Using R-Matrix Methods*, Atoms, **8**, 60 (2020).
119. E. Gatuzz, **T. W. Gorczyca**, M. F. Hasoglu, N. S. Schulz, L. Corrales, and C. Mendoza, *Silicon ISM X-ray Absorption: the Gaseous Component*, Monthly Notices of the Royal Astronomical Society, **498**, L20 (2020).
118. E. P. Benis, I. Madesis, A. Laoutaris, S. Nikolaou, A. Dubois, **T. W. Gorczyca**, and T. J. M. Zouros, *Population of the states in collisions of mixed-state ($1s^2\ ^1S, 1s2s\ ^3S$) B^{3+} and C^{4+} ion beams with He and H_2 targets*, X-Ray Spectroscopy, **49**, 54 (2020).
117. Efrain Gatuzz, J.-U. Ness, **T. W. Gorczyca**, M. F. Hasoglu, Timothy R. Kallman, and Javier A. Garcia, *Carbon X-ray absorption in the local ISM: fingerprints in X-ray Novae spectra*, Monthly Notices of the Royal Astronomical Society: Letters, **479**, 2457 (2018).
116. D. Nikolić, **T. W. Gorczyca**, K. T. Korista, M. Chatzikos, G. J. Ferland, F. Guzmán, P. A. M. van Hoof, R. J. R. Williams, and N. R. Badnell, *Suppression of Dielectronic Recombination Due to Finite Density Effects. II. Analytical Refinement and Application to Density-dependent Ionization Balances and AGN Broad-line Emission*, Astrophys. J Supp. **237**, 41 (2018).
115. K. E. Koehler M. A. Famiano, C. J. Fontes, **T. W. Gorczyca**, M. W. Rabin, D. R. Schmidt, J. N. Ullom, M. P. Croce, *First Calorimetric Measurement of Electron Capture in ^{193}Pt with a Transition Edge Sensor*, Journal of Low Temperature Physics, <https://doi.org/10.1007/s10909-018-1984-2> (2018).
114. J. Kaur, **T. W. Gorczyca**, and N. R. Badnell, *Dielectronic Recombination Data for Dynamic Finite-Density Plasmas. XV. The Silicon Isoelectronic Sequence*, Astronomy and Astrophysics, **610**, A41 (2018).
113. I. Dumitriu, R. C. Bilodeau, **T. W. Gorczyca**, C. W. Walter, N. D. Gibson, D. Rolles, Z. D. Pelic, A. Aguilar, and N. Berrah, *Inner-shell Photodetachment from Ni^- : A Giant Feshbach Resonance*, Phys. Rev. A **96**, 023405 (2017).
112. N. R. Badnell, G. J. Ferland, **T. W. Gorczyca**, D. Nikolic, and G. A. Wagle, *Bootstrapping Dielectronic Recombination from Second-row Elements and the Orion Nebula*, Astrophys. J, **804**, 100 (2015).
111. T. G. Lee, C. P. Ballance, S. A. Abdel-Naby, J. L. King, **T. W. Gorczyca**, and M. S. Pindzola, *R-matrix with Pseudostates Study of Single Photon Double Ionization of Endohedral Be and Mg Atoms*, J. Phys. B **48**, 065201 (2015).

110. E. Gatuzz, J. García, T. R. Kallman, C. Mendoza, and **T. W. Gorczyca**, *ISMabs: A Comprehensive X-ray Absorption Model for the Interstellar Medium*, *Astrophys. J* **800**, 29 (2015).
109. M. F. Hasoğlu, S. A. Abdel-Naby, E. Gatuzz, J. García, T. R. Kallman, C. Mendoza, and **T. W. Gorczyca**, *K-shell Photoabsorption of Magnesium Ions*, *Astrophys. J Supp.* **214**, 8 (2014).
108. E. Gatuzz, J. García, C. Mendoza, T. R. Kallman, M. A. Bautista, and **T. W. Gorczyca**, *Physical Properties of the Interstellar Medium Using High-resolution Chandra Spectra: O K-edge Absorption*, *Astrophys. J* **790**, 131 (2014).
107. W. C. Stolte, Z. Felfli, R. Guillemin, G. Öhrwall, S.-W. Yu, J. A. Young, D. W. Lindle, **T. W. Gorczyca**, N. C. Deb, S. T. Manson, A. Hibbert, and A. Z. Msezane, *Inner-Shell Photoionization of Atomic Chlorine*, *Phys. Rev. A* **88**, 053425 (2013).
106. **T. W. Gorczyca**, M. A. Bautista, M. F. Hasoglu, J. García, E. Gatuzz, J. S. Kaastra, T. R. Kallman, S. T. Manson, C. Mendoza, A. J. J. Raassen, C. P. De Vries, and O. Zatsarinny, *A Comprehensive X-Ray Absorption Model for Atomic Oxygen*, *Astrophys. J* **779**, 78 (2013).
105. R. A. Phaneuf, A. L. D. Kilcoyne, N. B. Aryal, K. K. Baral, D. A. Esteves-Macaluso, C. M. Thomas, J. Hellhund, R. Lomsadze, **T. W. Gorczyca**, C. P. Ballance, S. T. Manson, M. F. Hasoglu, S. Schippers, and A. Müller, *Probing Confinement Resonances by Photoionizing Xe inside a C_{60}^+ Molecular Cage*, *Phys. Rev. A* **88**, 053402 (2013).
104. **T. W. Gorczyca**, T.-G. Lee, and M. S. Pindzola, *Two-Electron Photoionization Processes in $He@C_{60}$ using R-matrix with Pseudostates and Time-Dependent Close-Coupling Methods*, *J. Phys. B* **46**, 195201 (2013).
103. D. Nikolić, **T. W. Gorczyca**, K. T. Korista, G. Ferland, and N. R. Badnell, *Suppression of Dielectronic Recombination Due to Finite Density Effects*, *Astrophys. J* **768**, 82 (2013).
102. M. F. Hasoglu, H. L. Zhou, **T. W. Gorczyca**, and S. T. Manson, *Photoionization of Confined Ca in a Spherical Potential Well*, *Phys. Rev. A* **87**, 013409 (2013).
101. **T. W. Gorczyca**, M. F. Hasoglu, and S. T. Manson, *Photoionization of Endohedral Atoms Using R-matrix Methods: Application to $Xe@C_{60}$* , *Phys. Rev. A* **86**, 033204 (2012).
100. M. F. Hasoglu, **T. W. Gorczyca**, M. A. Bautista, Z. Felfli, and S. T. Manson, *Radiation Damping in the Photoionization of Fe^{14+}* , *Phys. Rev. A* **85**, 040701(R) (2012).
99. Sh. A. Abdel-Naby, D. Nikolić, **T. W. Gorczyca**, and N. R. Badnell, *Dielectronic Recombination Data for Dynamic Finite-Density Plasmas: XIV. The Aluminum Isoelectronic Sequence*, *Astronomy and Astrophysics* **537**, A40 (2012).
98. I. Dumitriu, R. C. Bilodeau, **T. W. Gorczyca**, C. W. Walter, N. D. Gibson, Z. D. Pesic, D. Rolles, and N. Berrah, *Inner-Shell Photodetachment from Ru^-* , *Phys. Rev. A* **82**, 043434 (2010).

97. M. F. Hasoglu, Sh. A. Abdel-Naby, **T. W. Gorczyca**, J. J. Drake, and B. M. McLaughlin, *K-Shell Photoabsorption Studies of the Carbon Isonuclear Sequence*, *Astrophysical Journal* **724**, 1296 (2010).
96. D. Nikolić, **T. W. Gorczyca**, K. T. Korista, and N. R. Badnell, *Dielectronic Recombination of Argon-Like Ions*, *Astronomy and Astrophysics* **516**, A97 (2010).
95. I. Dumitriu, R. C. Bilodeau, **T. W. Gorczyca**, C. W. Walter, N. D. Gibson, A. Aguilar, Z. D. Pesic, D. Rolles, and N. Berrah, *Inner-Shell Photodetachment from Fe^-* , *Phys. Rev. A* **81**, 053404 (2010).
94. D. Nikolić, **T. W. Gorczyca**, and N. R. Badnell, *Quantifying the Strength and Asymmetry of Giant Resonances in the Photorecombination of Sc^{3+} and the Photoionization of Sc^{2+}* , *Phys. Rev. A* **81**, 030501(R) (2010).
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CONTRIBUTED ABSTRACTS:

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25. **T. W. Gorczyca** N. R. Badnell, F. Robicheaux, and M. S. Pindzola, *Non-Perturbative vs. Perturbative Methods for Photorecombination*, 11th APS Topical Conference on Atomic Processes in Plasmas, Auburn, AL (1998).
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21. **T. W. Gorczyca**, *Photoionization-excitation of Helium using an R-matrix with Pseudostates Method*, Abstracts of the 28th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Washington, D.C., (1997).
20. F. Robicheaux, **T. W. Gorczyca**, M. S. Pindzola, and N. R. Badnell, *One photon radiation damping*, Workshop on New Developments in Electron-Atom Scattering, Cambridge, MA (1996).
19. **T. W. Gorczyca**, *Elimination of electron-ion pseudoresonances associated with approximate target wavefunctions*, Workshop on New Developments in Electron-Atom Scattering, Cambridge, MA (1996).
18. P. A. Zavodszky, J. A. Wroblewski, S. M. Ferguson, J. H. Houck, O. Voitke, J. A. Tanis, **T. W. Gorczyca**, and N. R. Badnell, *L-shell resonant transfer excitation in $\text{Cu}^{18+} + \text{H}_2$ Collisions*, Abstracts of the 17th International Conference of X-ray and Inner-Shell Processes, Hamburg, Germany (1996).
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16. A. D. Price, N. R. Badnell, and **T. W. Gorczyca**, *A unified R-matrix approach to radiation damping*, Abstracts of the 23rd National Conference on Atomic, Molecular and Optical Physics, Oxford University, UK (1996).

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14. **T. W. Gorczyca**, F. Robicheaux, M. S. Pindzola, and N. R. Badnell, *Radiation-damped R-matrix calculations for the electron-impact excitation of Ti^{20+}* , Abstracts of the 26th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Toronto, Ontario, Canada (1995).
13. **T. W. Gorczyca**, M. S. Pindzola, N. R. Badnell, H. P. Summers, and D. C. Griffin, *Electron-impact excitation and ionization cross sections for chromium and molybdenum*, Abstracts of the 14th International Conference on Atomic Physics, Boulder, CO (1994).
12. D. C. Griffin, M. S. Pindzola, **T. W. Gorczyca**, and N. R. Badnell, *Elastic and inelastic scattering of electrons from Ar and Cl*, Abstracts of the 14th International Conference on Atomic Physics, Boulder, CO (1994).
11. **T. W. Gorczyca**, M. S. Pindzola, *Electron-impact excitation cross section for Kr^{6+}* , Abstracts of the 25th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Crystal City, VA (1994).
10. M. S. Pindzola, P. Gavras, and **T. W. Gorczyca**, *Photoionization of a model helium atom*, Abstracts of the 14th International Conference on Few Body Problems in Physics, Williamsburg, VA (1994).
9. D. C. Griffin, M. S. Pindzola, **T. W. Gorczyca**, and N. R. Badnell, *The theory of indirect processes in electron-impact ionization*, Atomic Collisions: A Symposium in Honor of Christopher Bottcher, Oak Ridge, TN (1994).
8. **T. W. Gorczyca**, M. S. Pindzola, N. R. Badnell, and D. C. Griffin, *Electron-impact ionization of Sc^{2+} and Ti^{3+}* , Abstracts of the 9th APS Topical Conference on Atomic Processes in Plasmas, San Antonio, TX (1993).
7. N. R. Badnell, D. C. Griffin, **T. W. Gorczyca**, and M. S. Pindzola, *Perturbative and non-perturbative studies of resonance contributions to electron-ion excitation and ionization*, Abstracts of the 18th International Conference on the Physics of Electronic and Atomic Collisions, Aarhus, Denmark (1993).
6. M. S. Pindzola, **T. W. Gorczyca**, and C. Bottcher *Non-perturbative calculations for the multiphoton ionization of hydrogen and lithium atoms*, Abstracts of the 24th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Reno, NV (1993).
5. **T. W. Gorczyca** and M. S. Pindzola, *Inner and outer shell excitation cross sections for krypton ions*, Abstracts of the 24th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Reno, NV (1993).

4. **T. Gorczyca** and D. W. Norcross, *Close-coupling anion curves for HF^- and HCl^-* , Abstracts of the 22nd Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Washington, DC (1991).
3. **T. Gorczyca** and D. W. Norcross, *Molecular negative ion resonance curves*, Abstracts of the 20th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Windsor, Ontario (1989).
2. **T. Gorczyca** and D. W. Norcross, *The calculation of molecular electron affinities*, Abstracts of the 41st Annual Gaseous Electronics Conference, Minneapolis, MN (1988).
1. **T. Gorczyca** and D. W. Norcross, *The calculation of molecular electron affinities*, Abstracts of the 19th Annual Meeting of the Division of Atomic, Molecular and Optical Physics, Baltimore, MD (1988).

SUPERVISION OF STUDENT THESIS PROJECTS:

- David La Mantia** *Simultaneous X-Ray Emission Accompanying Two Electron Capture For Fluorine on Gas Targets*, Ph. D. Thesis, December 2019.
- Katrina Koehler** *Sensitivity of the Theoretical Electron Capture Shape and Comparisons to Experiments*, Ph. D. Thesis, April 2019.
- Madhushani Wickramarathna** *Double Photoionization of Multi-Electron Atoms using an R-matrix with Pseudostates Approach*, M.S., December 2017 (Committee Chair).
- Jagjit Kaur** *Near-Threshold Dielectronic Recombination of Si-Like Ions: Perturbative, R-matrix, and MCHF Methodologies*, Ph. D. Thesis, July 2017 (Committee Chair).
- Gaetan VanGyseghem** *An R-Matrix, Quantum Defect Theoretical Approach for the Photoionization of Diatomic Molecules: Application to N₂*, Ph. D. Thesis, December 2016 (Committee Chair).
- Ehab ElHoussieny** *Time-Dependent Photoionization of Gas Outflows in AGN*, Ph. D. Thesis, Summer 2016.
- Darshika Keerthisinghe** *Transmission and Guiding of Electrons through Insulating PET Nanocapillaries*, Ph. D. Thesis, April 2015.
- Samanthi Wickramarachchi** *Study of Electron Transmission through Tapered Glass Capillaries*, Ph. D. Thesis, April 2015.
- Chengyang Li** *Probing Quantum Phase Transitions by Inelastic X-ray Scattering Measurements and ab initio Calculations*, Ph. D. Thesis, June 2014.
- Laurentiu Dumitriu** *Theoretical Modeling of Near-Threshold Shape Resonance Behavior in Experimental Photodetachment Experiments*, M. S. Thesis, June 2013 (Committee Chair).
- Tamer Elkafrawy** *Radiative Double Electron Capture in Collisions of Fully-Stripped Fluorine Ions with Carbon Foils*, Ph. D. Thesis, December 2012.
- Buddhi Man Rai** *Modeling Transmission of Photonic Crystal Waveguide Modes Enhanced by Kerr Nonlinearity*, Ph. D. Thesis, August 2012.
- Shahin Abdel Naby** *Dielectronic Recombination of for Aluminum-Like Ions and Photoabsorption Cross Sections for Magnesium Ions at the K-Edge*, Ph. D. Thesis, December 2010 (Committee Chair).
- Ileana Dumitriu** *Inner-Shell Photodetachment of Negative Ions*, Ph. D. Thesis, December 2010.
- Huaizhen Zhang** *Photoionization of Rare Gas Clusters*, Ph. D. Thesis, June 2009.
- Lihua Wang** *Entanglement Perturbation Theory for Antiferromagnetic Spin Chains*, Ph. D. Thesis, May 2009.

- M. Fatih Hasoglu** *Calculations of K-Shell Fluorescence Yields and Photoabsorption Cross Sections for Carbon Ions at the K-Edge*, Ph. D. Thesis, December 2008 (Committee Chair).
- Nathan Peplinski - Department of Biological Sciences** *Investigating Alterations in GDNF Expression in Skeletal Muscle with Aging and Activity*, Ph. D. Thesis, June 2007.
- Chaminda Nalaka Kodituwakku** *Electronic Excitations Measurements of Copper Phthalocyanine and Phonon Measurement of k-(BEDT-TTF)Cu(CNS)₂ by using Inelastic X-ray Scattering*, Ph. D. Thesis, April 2007.
- Ximao Feng** *Photoexcitation and Photoionization of the Argon Atom and the Hydrogen Bromide Molecule*, Ph. D. Thesis, December 2005.
- Osama Abu-Haija** *Single-Electron Capture Processes in Slow Collisions of He²⁺ with Molecular Targets*, Ph. D. Thesis, June 2005.
- Sabbir Hossein** *Interferences in Electron Emission Spectra for H⁺ Impact on H₂*, Ph. D. Thesis, December 2004.
- Habibollah Aliabadi - Kansas State University** *High Resolution Zero Degree Auger Electron Spectroscopy of Doubly Excited Helium-Like Resonance States of Boron, Magnesium and Silicon*, Ph. D. Thesis, April 2004.
- Sophie Canton-Rogan** *Studies of Atomic and Molecular Dynamics using Photoelectron Spectroscopy*, Ph. D. Thesis, December 2003.
- Marco Wiedenhoeft** *Double Photoionization of Atoms and Molecules*, Ph. D. Thesis, August 2003.
- Ali Alnaser** *Electron Correlation Leading to Double-K-Shell Vacancy Production in Li-Like Ions Colliding with Helium*, Ph. D. Thesis, August 2002.
- Oleg Nayandin** *Photoexcitation and Photoionization of Rare Gases and Molecules using Third Generation Synchrotron Radiation*, Ph. D. Thesis, January 2001.
- Daniele Bortolotti** *Time Evolution of Quantum Mechanical Two Electron Systems*, Lee Honors College Thesis, April 2001 (Committee Chair).
- Trilisa M. Perrine** *Quantum Theory and Religion*, Lee Honors College Thesis, April 1999.
- Ahmed H. Farhat** *Angle-Resolved Studies of Inner Shell Excitations for Argon, Krypton and Xenon using Third Generation Synchrotron Sources*, Ph. D. Thesis, August 1998.
- Kadir Akgüngör** *Collision Spectroscopy of Low Energy Capture by Multiply Charged Ions from Atomic Targets*, Ph. D. Thesis, November 1997.

PROFESSIONAL ACTIVITIES:

2017	Member, Local Organizing Committee, <i>Workshop on Astrophysical Opacities (WMU)</i> .
2015-present	Member, DAMOP/APS Program Committee.
1998-present	Referee, <i>Physical Review Letters</i> .
1997-present	Referee, <i>Physical Review A</i> .
1999-present	Referee, <i>The Astrophysical Journal</i> .
2001-present	Referee, <i>Atomic Data and Nuclear Data Tables</i> .
2001-present	Referee, <i>Journal of Physics B</i> .
2002-present	Referee, <i>Physica Scripta</i> .
2004-present	Reviewer, <i>DOE Fusion Energy program</i> .
2004-present	Reviewer, <i>NASA APRA program</i> .
2008	Reviewer, <i>NASA SHP SR&T program</i> .
2008-present	Referee, <i>Nuclear Instruments and Methods in Physics Research B</i> .
2008-2009	Member, ICPEAC Executive and Local Committees.
2001	Referee, <i>The Journal of Computational Chemistry</i> .
1999	Mail-In Reviewer, <i>International Science and Technology Center (ISTC)</i> .
1997	Referee, <i>The European Physical Journal D</i> .
1997	Referee, <i>Computer Physics Communications</i> .

UNIVERSITY SERVICE:

- Multiple Volunteer Saturday's at WMU Gold Medallion Scholar's Competitions and Science Olympiads
- Graduate Committee (Chair) (7/97-present)
- Comprehensive Examination Committee (7/97-present)
- Physics Department Newsletter Editor (9/00-5/15)
- Physics Colloquium Coordinator (8/96-5/99;9/11-9/14)
- Research Report Editor (7/97-8/10)
- Member of the International Conference for Photonic, Electronic, and Atomic Physics (ICPEAC) general and local organizing committees, held at WMU in 2009.
- Informal Atomic Physics Seminar Coordinator (8/98-present)
- Physics Department Representative for the Electronic Thesis/Dissertation (ETD) Pilot Project (9/00-9/03)
- Faculty Representative (9/02-8/04)
- AAUP Representative (9/02-8/04)
- Rood Hall Arts and Sciences Computing Center Advisory Committee (6/00-8/04)

- Undergraduate Committee (8/98-8/01)
- Physics Department Senate Representative (9/00-9/01)
- Host of the Physics Department's nominee for the WMU 2000-2001 Visiting Scholars and Artists Program
- Preprofessional Committee (9/98-8/00)