

Mark W. Gealy

PUBLICATIONS (Peer Reviewed Journals)

Balmer- α and Balmer- β Emission Cross Sections for Low-Energy H Collisions with He and H₂, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **28**, 176, (1983).

N₂⁺ First-Negative Emission Cross Sections for Low-Energy H⁺ and H Impact on N₂, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **28**, 2141, (1983).

Prediction of Photon Yields for Proton Aurorae in an N₂ Atmosphere, B. Van Zyl, M. W. Gealy, and H. Neumann, *J. Geophys. Res.* **89**, 1701, (1984).

Excitation of Low-Energy H Atoms in H + Ne Collisions, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **31**, 2922, (1985).

Balmer-Line Emission from Low-Energy H Impact on Kr and Xe, B. Van Zyl, H. Neumann, and M. W. Gealy, *Phys. Rev. A* **33**, 2093, (1986).

New Molecular Dissociation Furnace for H and O Atom Sources, B. Van Zyl and M. W. Gealy, *Rev. Sci. Instrum.* **57**, 359, (1986).

Balmer-Line Emission from Low-Energy H⁺ Impact on Rare-Gas Atoms, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **33**, 2333, (1986).

Lyman- α Emission from Low-Energy H Impact on Rare-Gas Atoms, B. Van Zyl and M. W. Gealy, *Phys. Rev. A* **35**, 3741, (1986).

Lyman- α Emission from H⁺ Impact on Rare-Gas Atoms, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **35**, 4551, (1986).

Cross Sections for Electron Capture and Loss. I. H⁺ and H⁻ Impact on H and H₂, M. W. Gealy and B. Van Zyl, *Phys. Rev. A* **36**, 3091, (1987).

Cross Sections for Electron Capture and Loss. II. H Impact on H and H₂, M. W. Gealy and B. Van Zyl, *Phys. Rev. A* **36**, 3100, (1987).

Lyman- α Emission from Low-Energy H + H₂ and H⁺ + H₂ Collisions, B. Van Zyl, M. W. Gealy, and H. Neumann, *Phys. Rev. A* **40**, 1664, (1989).

Projectile- and Target-Charge Dependant Effects in Ionizing Collisions of H⁺ and He²⁺ with He, Ne, and Ar Atoms, T. J. Gay, M. W. Gealy, and M. E. Rudd, *J. Phys. B: At. Mol. Opt. Phys.* **23**, L823, (1990).

Ejected Electron Spectra in Proton-Atomic Hydrogen Collisions, D. R. Schultz, R. E. Olson, C. O. Reinhold, M. W. Gealy, George W. Kerby III, Ying-Yuan Hsu, and M. E. Rudd, *J. Phys. B: At. Mol. Opt. Phys.* **24**, L599, (1991).

Backward Peak in the Electron Spectrum of 70-keV Protons from a Target from a Hydrogen Atom Source, M. E. Rudd, M. W. Gealy, G. W. Kerby III, and Ying-Yuan Hsu, *Phys. Rev. Lett.* **68**, 1504, (1992).

Energy and Angular Distributions of Electrons from Collisions of Protons with Hydrogen. I. Molecular Targets, M. W. Gealy, G. W. Kerby III, Ying-Yuan Hsu, and M. E. Rudd, *Phys. Rev. A*, **51**, 2247, (1995).

Energy and Angular Distributions of Electrons from Collisions of Protons with Hydrogen. II. Atomic Targets, G. W. Kerby III, M. W. Gealy, Ying-Yuan Hsu, M. E. Rudd, D. R. Schultz, and C. O. Reinhold, *Phys. Rev. A* **51**, 2256, (1995).

Energy and Angular Distributions of Electrons from Ion Impact on Atomic and Molecular Hydrogen. III. 28-114 keV $\text{He}^+ + \text{H}_2$, Y.-Y. Hsu, M.W. Gealy, G. W. Kerby III, and M. E. Rudd, *Phys. Rev. A* **53**, 297, (1996).

Energy and Angular Distributions of Electrons from Ion Impact on Atomic and Molecular Hydrogen. IV. 28-114 keV $\text{He}^+ + \text{H}$ Collisions, Y.-Y. Hsu, M.W. Gealy, G.W. Kerby III, M.E. Rudd, D.R. Schultz, and C.O. Reinhold, *Phys. Rev. A* **53**, 303, (1996).

Energy Levels, M. W. Gealy, Commissioned article, *The Macmillan Encyclopedia of Physics*, Simon & Schuster Macmillan Publishers, 494, (1996).

Doubly Differential Cross Sections of Low-Energy Electrons Emitted in the Ionization of Molecular Hydrogen by Bare Carbon Ions, Lokesh C. Tribedi, P. Richard, D. Ling, Y. D. Wang, C. D. Lin, R. Moshhammer, G. W. Kerby III, M. W. Gealy, and M. E. Rudd, *Phys. Rev. A* **54**, 2154, (1996).

Double-differential distributions of electron emission in a pure three-body collision: ionization of atomic hydrogen by highly charged ions, Lokesh C. Tribedi, P. Richard, W. DeHaven, L. Gulyás, M. W. Gealy and M. E. Rudd, *J. Phys. B: At. Mol. Opt. Phys.* **31**, L369, (1998).

Zero-Degree Auger Electron Spectroscopy of Quasi-Free Electrons Scattered by Highly Charged Ions, Habib Aliabadi, Patrick Richard, Chander P Bhalla, Hiro Tawara, Peter Nabradi, Mark Gealy and Asad T. Hasan, Applications of Accelerators in Research and Industry, AIP Conf. Proc., **576**, 172, (2001).

Use of an Accelerator in Undergraduate Modern Physics Courses at Concordia College, Mark Gealy, Applications of Accelerators in Research and Industry, AIP Conf. Proc, **680**, 851, (2003).

Complete Cancellation of Noise via Color-Locking in Nearly Degenerate Four-Wave-Mixing Using Noisy Light, Tanner F. Schulz, Pye Phyoo Aung, Lindsay R. Weisel, Krista M. Cosert, M.W. Gealy, and Darin J. Ulness, *J. Opt. Soc. B*, **22**, 1052, (2005).

Effects of Beam Polarization on Coherent Anti-Stokes Raman Scattering Using Noisy Light, Pye Phyoo Aung, Krista M. Cosert, Lindsay R. Weisel, Tanner F. Schulz, M.W. Gealy and Darin J. Ulness, *J. Raman Spectrosc.*, **36**, 409, (2005).

Ion Pair Interaction in Pyridinium Carboxylate Solutions, Erik R. Berg, Daniel D. Green, Diane C. Moliva, Brady T. Bjerke, M. W. Gealy and Darin J. Ulness, *J. Phys. Chem. A* **112**, 833, (2008).

Effects of Hydrogen Bonding on the Ring Breathing Mode of Pyridine in Pyridine/Chloroform and Pyridine/Bromoform Systems, Haiyan Fan, Diane Moliva A., Jeffrey K. Eliason, Jason L. Olson, Daniel D. Green, M.W. Gealy and Darin J. Ulness, *Chem. Phys. Let.* (In Press, August 2009).

CONTRIBUTED PAPERS (Not Refereed)

Excitation of Hydrogen Atoms to the $n = 3$ and 4 Levels in Collisions with Rare-Gas Atoms, B. Van Zyl, M. W. Gealy, H. Neumann, and R. C. Amme, Proceedings of the Thirteenth International Conference on the Physics of Electronic and Atomic Collisions, (Berlin, West Germany, July, 1983).

New Molecular Dissociation Furnace, M. W. Gealy and B. Van Zyl, Proceedings of the Seventeenth Conference of the Colorado-Wyoming Academy of Sciences, (Denver, CO, April, 1985).

Excitation of Low-Energy H to ns States in Collisions with Rare-Gas Atoms, B. Van Zyl, M. W. Gealy, and P. S. Ormsby, Proceedings of the Fourteenth International Conference on the Physics of Electronic and Atomic Collisions, Palo Alto, CA, July, 1985).

Lyman-alpha Emission from Low-Energy H Collisions with Rare-Gas Atoms, Proceedings of the Fourteenth International Conference on the Physics of Electronic and Atomic Collisions, Palo Alto, CA, July, 1985).

Hydrogen-Line Emission Cross Sections for Proton and Hydrogen Atom Collisions with Nitrogen and Oxygen Molecules, M. W. Gealy and B. Van Zyl, Proceedings of the Fall Meeting of the Geophysical Union, (San Francisco, CA, December, 1985). EOS, Trans. Am. Geophys. Un. **66**, 994, 1985.

Prediction of Hydrogen-Line Emissions during Proton Aurorae in a Nitrogen Atmosphere, B. Van Zyl and M. W. Gealy, Proceedings of the Fall Meeting of the Geophysical Union, (San Francisco, CA, December, 1985). EOS, Trans. Am. Geophys. Un. **66**, 1000, 1985.

Lyman-alpha Emission from Low-Energy H^+ Impact on Rare-Gas Atoms, B. Van Zyl and M. W. Gealy, *Bull. Am. Phys. Soc.* **31**, 962, 1986.

Charge-Changing Cross Sections for H^+ , H, and H^- Impact on H and H_2 , M. W. Gealy and B. Van Zyl, *Bull. Am. Phys. Soc.* **31**, 962, 1986.

Ion Formation in Low-Energy H + H Collisions, M. W. Gealy and B. Van Zyl, Proceedings of the Fifteenth International Conference on the Physics of Electronic and Atomic Collisions, Brighton, England, July, 1987).

Projectile-Charge Dependence of Noble-Gas Ionization, T. J. Gay, M. W. Gealy, and M. E. Rudd, Proceedings of the Sixteenth International Conference on the Physics of Electronic and Atomic Collisions, New York, NY, July, 1989).

Preliminary measurements of Doubly Differential Cross Sections for Ejection of Electrons from Atomic Hydrogen by 70-keV Protons, G. W. Kerby, M. W. Gealy, and M. E. Rudd, *Bull. Am. Phys. Soc.* **36**, 1253, 1991.

Doubly Differential Cross Sections for Ejection of Electrons in Collisions of Protons with Atomic Hydrogen, M. W. Gealy, G. W. Kerby III, Ying-Yuan Hsu, and M. E. Rudd, Proceedings of the Eighteenth International Conference on the Physics of Electronic and Atomic Collisions, (Aarhus, Denmark, July, 1993).

Doubly Differential Electron Emission Cross Sections for 30-120 keV Helium Ions on Hydrogen Atoms, Ying-Yuan Hsu, M. W. Gealy, G. W. Kerby III, and M. E. Rudd, Proceedings of the Eighteenth International Conference on the Physics of Electronic and Atomic Collisions, (Aarhus, Denmark, July, 1993).

A Cursory Look at Energy Spectra of Electrons Scattered in the Forward Direction in Collisions of Protons and $^3He^{2+}$ Ions with Hydrogen Molecules, M. W. Gealy, Symposium on Two-Center Effects in Ion-Atom Collisions, (Lincoln, NE, May, 1994).

Energy and Angular Distributions of Electrons Ejected in Collisions of H^+ and He^+ with H and H_2 , Y.-Y. Hsu, G. W. Kerby III, M. W. Gealy, M. E. Rudd, C. O. Reinhold, and D. R. Schultz, Proceedings of the Nineteenth International Conference on the Physics of Electronic and Atomic Collisions, (Whistler, British Columbia, July, 1995).

Evidence for Triply Excited Hollow Ionic States, P.A. Závodszy, H. Aliabadi, P. Richard, M.W. Gealy*, C.P. Bhalla, Meeting of APS Division of Atomic, Molecular and Optical Physics, (Atlanta, GA, March, 1999).

Zero-Degree Auger Electron Spectroscopy of Quasi-Free Electrons Scattered by Highly Charged Ions, Habib Aliabadi, Patrick Richard, Chander P. Bhalla, Hiro Tawara, Peter Nabradi and Mark Gealy, *Bull. Am. Phys. Soc.* **75**, 25, (2000).

Doubly Differential Cross Sections for Emission of Electrons in Collisions of 2.5MeV/u C⁵⁺ and C⁴⁺ Ions with Helium, M. W. Gealy, H. Aliabadi, L. Gulyás, P. Richard, J. E. Schauer and Amanda J. Kerstein, *Bull. Am. Phys. Soc.* **75**, 86, (2000).

Ionization and Electron Loss to the Continuum in Collisions of 2.5 MeV/u C⁴⁺ Ions with Helium Atoms, M. W. Gealy, H. Aliabadi, L. Gulyás and P. Richard, Proceedings of the Twenty-Second International Conference on Photonic, Electronic and Atomic Collisions, (Santa Fe, NM, July, 2001).

Measurements of Differential Electron-Emission Cross Sections in Collisions of Fast Carbon Ions with Helium Atoms, Mark W. Gealy, Jonathan E. Schauer '01 and Amanda J. Kerstein '01, Teaching at Concordia, 2002.