NAME **Gregory Lapicki**

TITLE **Professor**

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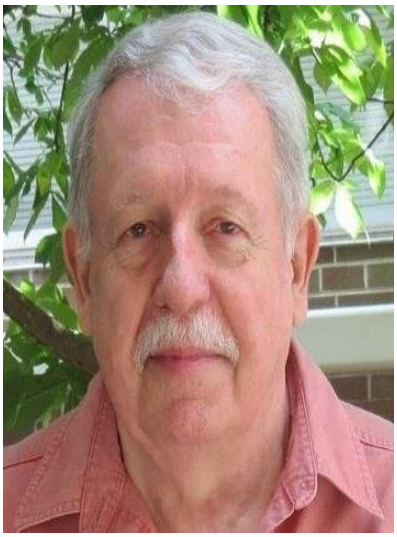

EDUCATION

M.S., Warsaw University, 1962-67, Physics

Ph. D., New York University, 1968-75, Physics

POSITIONS and EMPLOYMENT

Post Doc, Radiation and Solid State Laboratory, New York University, 1976-79.
Visiting Assistant Professor, Texas A&M University, 1979-80.
Assistant Professor, Northwestern University of Louisiana, 1980-81.
Associate Professor, East Carolina University, 1981-1987.
Professor, East Carolina University 1988-

HONORS

Fullbright Award, Centro Atómico, Bariloche, Argentina, 1991-92.

Served on the International Advisory Committee for PIXE (2013-2017).
At PIXE 2017, elected to its International Honorary Committee.

2015 Sigma Xi Research Award, ECU Chapter of Sigma Xi.

RESEARCH/CREATIVE ACTIVITY

Theoretical atomic physics. Inner-shell ionization and energy loss of charged particles in matter. Development of the ECPSSR theory of K-, L-, and M-shell ionization, and its improvement with the ECUSAR theory that is widely used for comparison with x-ray and Auger-electron production cross sections; in particular in PIXE analysis.

REFEREED PUBLICATIONS

Number of citations = circa 4000 on Google Scholar

Principal publications (from nearly 200 articles)

1. **W. Brandt and G. Lapicki, L-shell Coulomb ionization by heavy charged particles, Phys. Rev. A 20, 465-479 (1979).**

2. **G. Lapicki and W. Losonsky, Coulomb deflection in ion-atom collisions, Phys.Rev.A 20 , 481-490 (1979).**

3. **G. Lapicki and F. D. McDaniel, Electron capture from K shells by fully stripped ions, Phys.Rev.A 22, 1896-1905 (1980).**

4. **W. Brandt and G.Lapicki, Energy-loss effect in in inner shell Coulomb ionization by heavy charged particles, Phys.Rev.A 23, 1717-1729 (1981).**

5. **G. Lapicki and W. Lichten, Reconciliation of atomoc- and molecular orbital models in slow and symmetric collisions, Phys.Rev.A 31, 1354-1361 (1985).**

6. **G. Lapicki, Cross sections for K-shell x-ray production by hydrogen and helium ions, J.Phys.Chem. Data 18, 111-218 (1989).**

7. **G. Lapicki, Testing of the ECPSSR theory and its modifications with ratios of antiproton-to-proton ionization cross sections, Nucl.Instr.Meth. B 214, 34-42 (2005).**

8. **G. Lapicki, Scaling of analytical cross sections for K-shell ionization by nonrelativistic protons to cross sections by protons at relativistic velocities, J.Phys.B 41, 115201-115214 (2008).**

9. **J. Miranda and G. Lapicki, Experimental cross sections for L-shell x-ray production and ionization by protons, At.Data Nucl.Data Tables 100, 651-780 (2014).**

10. **G. Lapicki, The status of theoretical L-shell x-ray production by protons based on their revised empirical fit, Nucl.Instr.Meth. B 467, 123-129 (2000).**

Circa 200 publications. The most recent refereed articles since 2010:

1. D. Mitra, M. Sarkar, D. Bhattacharya, S. Santra, A. C. Mandal, G. Lapicki, "Lower and upper bounds on M-shell X-ray production cross sections by heavy ions", Nuclear Instruments & Methods in Physics Research B, 268 450-459 (2010).
2. G. Lapicki and J. Miranda, "Updated database for L x-ray production by protons and extraction of L-subshell ionization cross sections from only L γ and L α + L β cross sections" , X-Ray Spectrometry 40, 122-126 (2011).
3. L.C. Phinney, G. Lapicki, D.L. Weathers, F.U. Naab, J.L. Duggan, and F.D. McDaniel "Thorium and uranium M-shell x-ray production cross sections by 4.5-11.3 MeV carbon ion and 4.5-13.5 MeV oxygen ion bombardment", J. Phys. B 45, 035205-035213 (2012).
4. J. Miranda and G. Lapicki, “Experimental cross sections for L-shell x-ray production and ionization by protons”, At.Data Nucl.Data Tables 100, 651-780 (2014).
5. G. Lapicki, "Werner Brandt legacy to PIXE: Past and present ", Nuclear Instruments & Methods in Physics Research B, 318. 6-10 (2014).
6. D. D. Cohen, E. Stelcer, J. Crawford, A. Atanacio, C. Doherty, and G. Lapicki, "Comparison of proton and helium induced M subshell x-ray production cross sections with the ECUSAR theory", Nuclear Instruments & Methods in Physics Research B, 318, 11-14 (2014).
7. Ž. Smit and G. Lapicki, “Energy loss in the ECPSSR theory and its calculation with exact integration limits”, J. Phys. B 47, 055203-055210 (2014).
8. G. Lapicki, “Analytical formulas for differential cross sections for ejection of electrons in ionization of water by protons in the PWBA and ECPSSR”, J. Phys.Conf.Series 635, 022015 (2015).
9. S. Kumar, U. Singh, M. Oswal, G. Singh, N. Singh, D. Mitra, T. Nandi, G. Lapicki, "L shell x-ray production in high-Z elements using 4-6 MeV/u fluorine ions", Nuclear Instruments & Methods in Physics Research B, 395 39-51 (2017).
10. J. Miranda and G. Lapicki, “Errata and update to Experimental cross sections for L-shell x-ray production and ionization by protons”, At.Data Nucl.DataTables, 119, 443-453 (2018).
11. G. Lapicki and J. Miranda,”Universal empirical fit to L-shell X-ray production cross sections by protons”, Nuclear Instruments & Methods in Physics Research B, 414, 184-189 (2018).
12. C. Bagdia, S. Bhattacharjee, M. Roychowdhury, A. Mandal, G. Lapicki, L. Tribedi, "K-K electron capture from adenine and CO_2 molecule by fast carbon ions using KLL-Auger electron technique", X-Ray Spectrometry, 49, 160-164 (2020).
13. C. Bagdia, S. Bhatacharjee, M. Chowdhury, A. Mandal, G. Lapicki, L. Tribedi, "1s-1s electron transfer in collisions of fast C and O ions with adenine", Nuclear Instruments & Methods in Physics Research B. 462, 68-74 (2020).
14. G. Lapicki, “The status of theoretical L-shell x-ray production by protons based on their revised empirical fit”, Nuclear Instruments & Methods in Physics Research B, 467, 123-129 (2000)

INVITED PRESENTATIONS (the most recent since 2010)

An invited first talk at the opening session of the 12th International Conference on Particle Induced X-Ray Emission and Its Analytical Applications, 27 June -2 July 2010, Guildford, UK.

An invited talk at the 21st International Conference on the Application of Accelerators in Research and Industry, 8-13 August 2010, Fort Worth, USA.

Poster at the 14th International Congress of Radiation Research (incorporating the 57th Annual Meeting of the Radiation Research Society), 28 August -1 September 2011, Warsaw, Poland.

An invited first talk at the opening session of the 13th International Conference on Particle Induced X-Ray Emission, 3-8 March 2013, Gramado, Brazil.

An invited talk at the 24th International Symposium on Ion-Atom Collisions, 19-21 July 2015, Barcelona, Spain.

An invited talk at the 24th Conference on Applications of Accelerators in Research and Industry, Oct 30-Nov 4, 2016, Fort Worth, USA.

An invited talk at the 13th International Topical Meeting on Nuclear Applications of Accelerators, July 31-Aug 4, 2017, Québec City, Canada.

An invited talk at the 25th Conference on Applications of Accelerators in Research and Industry, Aug 12-17, 2018, Grapevine, TX, USA.

An invited talk at the IBA/PIXE & SIMS, 11-15 Oct, 2021, Surrey, UK (online event).

Contributed presentation at a Frontiers in Fundamental Physics session of the American Physical Society Meeting, 11-15 March 2022, Chicago, USA.

An invited talk at the Conference on Applications of Accelerators in Research and Industry, Oct 30-Nov 4, Denton, TX, USA.

Organizing committee for Atomic and Nuclear Physics in 2018 (Boston) and in 2017 (Las Vegas)

Professional memberships: American Physics Society Fulbright Association American Nuclear Society Sigma Xi Sigma Pi Sigma

Topic Editor: Atomic and Molecular Physics at the 24th CAARI, 2016, Fort Worth, USA.

Editorial Boards: Advisory Editorial Board for Nuclear Instruments and Methods B (since 2019)

American Research Journal of Physics Atoms International Journal of Applied Science

Journal of Applied Science Journal of Atomic and Molecular Sciences Frontiers in Physics

Open Physics (click editorial & scroll to Editors for Atomic and Molecular Physics)

Number of citations = circa 4000 on Google Scholar