

# GEORGE WAKALOPULOS

## PROFESSIONAL EXPERIENCE

**Adastra Technologies, Inc.**, Torrance, California **2001 to Present**

President and Chief Executive Officer

Founded to develop new state of the art small, portable hand-held units and floor machines for use with wood and concrete UV coatings as well as in the countertop and anti-graffiti markets in the U.S. and internationally.

**American International Technologies, Inc.**, Torrance, California **1988 to 2001**

President and Chief Executive Officer

Developed a new plasma electron gun system for testing low voltage applications of less than 100 keV. In 1993 developed a miniature electron beam (Min-EB) system for low voltage low cost EB processing. Company acquired by leading Japanese firm in 1997.

**Electro-Optical Energy Systems, Inc.**, Los Angeles, California **1981 to 1988**

President and Chief Executive Officer

Developed the Wire Ion Plasma (WIP) electron beam system for commercial applications. Established a job shop to provide Lawrence Livermore National Laboratory (LLNL) with high skilled professional personnel.

**Hughes Aircraft Company**, Culver City, California **1968 to 1981**

Staff Physicist-Section Head, Laser Systems Division

1969-Worked on battlefield simulations for TOW anti-tank missile. 1970-Established real time holographic measurement system for high power water-cooled laser mirrors. 1971-Devised atmospheric transmission experiments of 5 and 10 micron CO and CO<sub>2</sub> laser radiation. 1972-Developed pulsed CO<sub>2</sub> TEA laser for material processing. Developed WIP electron gun system for high power CO<sub>2</sub> laser. 1974-Developed a one microsecond high speed crowbar for 2 megawatt 12 kilovolt power supply. 1976-Established sealed-off CO<sub>2</sub> laser rangefinder for M-1 Tank. 1977-Developed twin WIP laser system for F-118 jet CO<sub>2</sub> laser weapon system. 1978-Developed WIP EB systems for LLNL UV laser for atomic vapor laser isotope separation (AVLIS) program. 1979-Developed waveguide CO<sub>2</sub> laser for cruise missile.

## EDUCATION

PhD: University of Southern California, 1975 (Incomplete)  
Physics

Master of Science: University of Southern California, 1974  
Quantum Electronics

Bachelor of Science: University of California, Los Angeles, 1968  
Electrical Engineering

## PUBLICATIONS

1. Wakalopoulos, G., "Wire-Ion-Plasma (WIP): A Revolutionary New Technology for E-Beam Curing," *Proceedings of Finishings '83*, Cincinnati, Ohio, October, 1983.

2. Myers, B.R., Chen, H.L., Meyer, G. and Wakalopoulos, G., "Performance Measurements of Sealed-Tube Electron Beam Windows," *Proceedings of the RadTech 96 Conference*, Nashville, Tennessee, May, 1996.
3. Myers, B.R., Chen, H.L., Meyer, G. and Wakalopoulos, G., "Performance Measurements of Sealed-Tube Electron Beam Windows," *Proceedings of the RadTech Japan Conference*, Tokyo, Japan, September, 1996.
4. Davis, J.I. and Wakalopoulos, G., "Innovative Electron-Beam Technology for Ultra Low Voltage Radiation Curing," *Proceedings of the RadTech Japan Conference*, Tokyo, Japan, September, 1996.
5. Davis, J.I. and Wakalopoulos, G., "Chemistry Considerations for Low-Voltage EB Applications," RadTech Report, September, 1996.
6. Davis, J.I. and Wakalopoulos, G., "Miniature EB Technology for High Speed Curing of Thin Films," *Proceedings of Label-Pack Converting Institute's International Conference of "The Latest Printing/Converting Options with Energy Cured Inks and Coatings"*, Clearwater, Florida, May, 1997.
7. Davis, J.I. and Wakalopoulos, G., "Miniature Electron Beam Technology for High Speed Curing of Thin Films," *Proceedings of the RadTech Asia '97 6<sup>th</sup> International Conference on Radiation Curing*, Tokyo, Japan, November, 1997.
8. Wakalopoulos, G., "The Basics of Electron Beam: Low Voltage or Ultra Low Voltage? What You Need to Know," RadTech Report, August, 1998.

## PATENTS

1. Wakalopoulos, G., United States Patent No. 3,970,892, "Ion Plasma Electron Gun," July 20, 1976.
2. Giguere, R.P., Washburn, R.D., and Wakalopoulos, G., United States Patent No. 4,025,818, "Wire Ion Plasma Electron Gun," May 24, 1977.
3. Wakalopoulos, G., Hill, R.A., Peressini, E.R., "United States Patent No. 4,558,450, "Cathode Bleed Arrangement for Electrically Excited Flowing Gas Lasers," October 12, 1985.
4. Wakalopoulos, G., Swedish Patent No. 8700017, "Ion Plasma Electron Gun," January 2, 1987.
5. Wakalopoulos, G., Great Britain Patent No. 8700605, "Ion Plasma Electron Gun," February 18, 1987.
6. Wakalopoulos, G., United States Patent No. 4,694,222, "Ion Plasma Electron Gun," September 15, 1987.
7. Wakalopoulos, G. and Farrell, S., Swedish Patent No. 8801145, "Ion Plasma Electron Gun with Dose Rate Control Via Amplitude Modulation of the Plasma Discharge," March 28, 1988.
8. Wakalopoulos, G., United States Patent No. 4,755,722, "Ion Plasma Electron Gun," July 5, 1988.
9. Wakalopoulos, G., German Patent No. 3700775, "Ion Plasma Electron Gun," July 21, 1988.
10. Wakalopoulos, G., French Patent No. 2609840, "Ion Plasma Electron Gun," July 22, 1988.
11. Wakalopoulos, G., United States Patent No. 4,910,435, "Remote Ion Source Plasma Electron Gun", March 20, 1990.
12. Wakalopoulos, G., Taiwan Patent No. 36302, "Remote Ion Source Plasma Electron Gun," July 10, 1990.
13. Danilychev, V. and Wakalopoulos, G., United States Patent No. 5,215,636, "Pulsed Discharge Surface Treatment Apparatus and Process," June 1, 1993.
14. Wakalopoulos, G., Taiwan Patent No. 73264, "Electron Beam Generating Apparatus," January 5, 1996.
15. Wakalopoulos, G., United States Patent No. Re. 35,203, "Electron Beam Array for Surface Treatment," April 9, 1996.

16. Wakalopulos, G., European Patent No. 0428527, "Remote Ion Source Plasma Electron Gun," August 14, 1996.
17. Wakalopulos, G., United States Patent No. 5,557,163, "Multiple Window Electron Gun Providing Redundant Scan Paths for an Electron Beam," September 17, 1996.
18. Wakalopulos, G., Taiwan Patent No. 79457, "Electron Beam Device with Single Crystal Window and Expansion Matched Anode," November 13, 1996.
19. Wakalopulos, G., United States Patent No. 5,612,588, "Electron Beam Device with Single Crystal Window and Expansion-Matched Anode," March 18, 1997.
20. Wakalopulos, G., Australia Patent No. 727840, "Apparatus and Method for a Modular Electron Beam System for the Treatment of Surfaces," April 24, 1997.
21. Wakalopulos, G., United States Patent No. 5,637,953, "Cathode Assembly for a Line Focus Electron Beam Device," June 10, 1997.
22. Wakalopulos, G., Taiwan Patent No.88138, "Multiple Window Electron Gun", July 21, 1997.
23. Wakalopulos, G., Taiwan Patent No. 089294, "Cathode Assembly for a Line Focus Electron Beam Device", December 26, 1997.
24. Wakalopulos, G., Taiwan Patent No. 120597, "Apparatus and Method for a Modular Electron Beam System for the Treatment of Surfaces", April 21, 1998.
25. Wakalopulos, G., United States Patent No. 5,909,032, "Apparatus and Method for a Modular Electron Beam System for the Treatment of Surfaces", June 1, 1999.
26. Meyer, G., Ciarlo, D., Myers, B., Chen, H-L, Wakalopulos, G., United States Patent No. 6,002,202, "Rigid Thin Windows for Vacuum Applications", December 14, 1999.
27. Wakalopulos, G. and E. Urgiles, Taiwan Patent No. 121801, "Sterilization Apparatus", January 26, 2000.
28. Wakalopulos, G. and E. Urgiles, United States Patent No. 6,140,657, "Sterilization by Low Energy Electron Beam", October 31, 2000.
29. Wakalopulos, G., United States Patent No. 6,239,543, "Electron Beam Plasma Formation for Surface Chemistry", May 29, 2001.
30. Wakalopulos, G. United States Patent No. 6,975,073, "Ion Plasma Beam Generating Device", December 15, 2005.

### **AWARDS**

1. 1995 R&D 100 Award, "Sealed-Tube Electron Beam Gun," sponsored by R&D Magazine, Chicago, Illinois, September, 1995.