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Edward A. Richley

OBJECTIVES:

Development of unusual electronic devices, whether micropower, radio, microwave, high voltage, or instrumentation.

Development of computational techniques for obtaining fundamental understanding of complex transport phenomena.

SUMMARY:

Practical experience in many areas of electrical engineering and applied physics.

Extensive theoretical and numerical experience applied to various transport problems.

Strong analytical skills.

Broad background in electrical engineering including analog design, instrument design, and RF design.

Good communication skills.

EXPERIENCE:

12/1999-present: Chief Scientist, *Multispectral Solutions, Inc.*, Gaithersburg, MD. Activities include analysis, refinement, and invention of techniques for implementing UWB systems.

1987-12/1999: Research Scientist, *Xerox Palo Alto Research Center*, Palo Alto, CA. Activities included process development for a moving particle display, RF circuitry and system design, and general analog electronics design.

1984-1986: *Patent Development and Marketing Corporation*, Naples, FL. Design of all electronics and software for a blood-pressure measurement instrument.

1979-1980: *Carnegie-Mellon University*, Pittsburgh, PA. Graduate teaching assistant. Taught undergraduate classes in electronics.

EDUCATION:

Carnegie-Mellon University, Pittsburgh, PA Ph.D. Electrical Engineering, (May, 1984). Thesis: "A Computational Methodology for Modeling Non-Equilibrium Phenomena in High Pressure Electric Arcs". Advisor: Dr. J. L. Lawless

Carnegie-Mellon University, Pittsburgh, PA M.S. Electrical Engineering, 1981.

Carnegie-Mellon University, Pittsburgh, PA B.S. (University Honors) Electrical Engineering, 1979.

PRESENTED PAPERS:

Richley, E., "An Elliptic Angular Moment Representation of the Boltzmann Equation", presented at: *51st Annual Gaseous Electronics Conference*, Maui, HI, October 1998.

Richley, E., "A Model of the D. C. Positive Column based on the Elliptic Representation of the Boltzmann Equation", presented at: *51st Annual Gaseous Electronics Conference*, Maui, HI, October 1998.

Preas, B., Richley, E., Vest, F., Sheridan, N. and Sprague, R. "A large area, Tiled Gyron Display", presented at: *SID 1998*, Anaheim, CA, May 1998.

Richley, E. "An energy-resolved self-consistent model of the DC positive column", presented at: *50th Annual Gaseous Electronics Conference*, Madison, WI, October, 1997.

Richley, E. and Tuma, D. T. "On the validity of the Saha Equation in Multi-temperature Plasmas", presented at: *1982 IEEE International Conference on Plasma Science*, Ottawa, Ontario, Canada, 1982.

PUBLICATIONS:

Pinhao, N. R., Donko, Z., Loffhagen, D., Pinheiro, M. J., and Richley, E.A., "Comparison of kinetic calculation techniques for the analysis of electron swarm transport at low to moderate E/N values", *Plasma Sources Sci. Technol.*, v13 pp719-728.

Richley, E. A., "Analysis of the low-pressure low-current dc positive column in neon", *Physical Review E*, Vol. 66, No. 2, August 2002, Art. No. 026402.

Richley, E. A. and Mikkelsen, J. C., "Electrical processes in nonpolar liquids based on initial transient response and recovery", *Journal of Applied Physics*, Vol. 86, No. 12, December 1999, pp. 7029-7038.

Richley, E., "Elliptic representation of the Boltzmann equation with validity for all degrees of anisotropy", *Physical Review E*, Vol. 59, Issue 4, April 1999, pp. 4533-4541.

- Richley, E., "Extending the Calculation of Electron Velocity Distribution Functions for Electrical Discharges to Large Values of E/N ", *Journal of Applied Physics*, Vol. 71, No. 9, May 1 1992, pp. 4190-4195.
- Richley, E., "Design of Quadrature Detectors", *RF Design*, May, 1991, pp. 68-72.
- Barth, R. and Richley, E., "Phase-Slip Technique for Direct Sequence Spread Spectrum Communication", *Xerox Technical Report, PARC Blue-and-White*, 1990.
- Richley, E., "Marx Generator for High Voltage Experiments", *Electronics and Wireless World*, Vol. 93, No. 1615, May, 1987, pp. 519-523.
- Richley, E. and Tuma, D. T., "On the Determination of Particle Concentrations in Multi-temperature Plasmas", *Journal of Applied Physics*, Vol. 53, No. 12, December 1982, pp. 8537-8542.
- Richley, E. and Tuma, D. T., "Mechanisms for Temperature Decay in the Freely Recovering Gas Blast Arc", *IEEE Transactions on Plasma Science*, Vol. PS-10, No. 1, March 1982, pp. 2-7.
- Richley, E. and Tuma, D. T., "Free Recovery of the Gas Blast Arc Column", *IEEE Transactions on Plasma Science*, Vol. PS-8, No. 1, December 1980, pp. 405-410.

U.S. PATENTS:

- 7,432,827, E. Richley, "Device for Activating Inductive Loop Sensor of a Traffic Light Control System"
- 6,766,988, E. Richley, "Block Occupancy Detector for Model Railroads"
- 5,752,677, E. Richley, "Block Occupancy Detector for Model Railroads"
- 5,437,057, E. Richley and L. Butcher, "Wireless Communications using Near Field Coupling"
- 5,262,098, J. Crowley, E. Richley, and N. Sheridan, "Method and Apparatus for Fabricating Bichromal Balls for a Twisting Ball Display"
- 5,223,755, E. Richley, "Extended Frequency Range Variable Delay Locked Loop for Clock Synchronization"
- 5,222,075, E. Richley, "Transmitted Code Clock Code-Matching Synchronization for Spread-Spectrum Communication Systems"
- 5,101,417, E. Richley and R. Barth, "Phase Controlled Synchronization for Direct Sequence Spread Spectrum Communication Systems"
- 5,122,818, S. Elrod, E. Richley, and E. Rawson, "Acoustic Ink Printers having Reduced Focusing Sensitivity"

5,025,793 E. Richley and C. Russell, "Finger Blood Pressure Measurement System"

AWARDS:

Fannie and John Hertz Foundation Graduate Fellowship 1979-1984.

IEEE Nuclear and Plasma Science Graduate Student Award 1983.

Carnegie-Mellon University, Electrical Engineering Department, E. M. Williams award 1979.

AFFILIATIONS: American Physical Society, member

INTERESTS: Bicycling, Metalworking, Amateur Radio, Railroads.

CITIZENSHIP: US