

CHARLES R. SZMANDA, Ph.D.

4 Crossman Avenue • Westborough, MA 01581 • (508) 517-2839 • szmanda@patent-practice.com

Registered, Patent Agent and experienced high technology inventor with a talent for writing, a clear strategic viewpoint and a bias for action.

SUMMARY

Expertise: REGISTERED U.S. PATENT AGENT: Registry Number: 48,618, Patent Statutory and Case Law, Patent Regulations, Chemical, Materials, Electronic and Mechanical Patents, Designing Around Valid Patents, Patent Strategy.
POLYMER ENGINEERING: Synthesis, Characterization, Functional and Structural Evaluation.
TECHNOLOGY VALUATION: Quantitative Valuation Tools, Decision Analysis, Technology Portfolio Optimization.
PHYSICAL CHEMISTRY: Kinetics, Spectroscopy, Computational Chemistry, Molecular Scattering.
MATERIALS SCIENCE: Organic and Inorganic Semiconductors, Crystallography, Nucleation, Solid State Ionics.
ELECTRONIC DEVICES: Organic Electronics, Photovoltaics, Lithography, Device Physics, Device Structures.
INORGANIC CHEMISTRY: Synthesis and Characterization, Bonding Theory, Structure-Function Relationships.
ORGANIC CHEMISTRY: Organic reaction mechanisms, Solvent Effects, Analytical Methods
DATA ANALYSIS: Numerical Methods, Optimization, Statistical Experimental Design and Analysis.
COMPUTING: Fortran, C, Basic, Windows, Macintosh, Linux/UNIX, MS Office, MathCad, Gaussian, JMP.

PROFESSIONAL EXPERIENCE

PRINCIPAL

Szmanda & Shelnut LLC, Westborough, MA

2006 - present

- Wrote/prosecuted patents and appeals, reexamination opinions, prior art searches/evaluations, competitor analyses, US and foreign, IP strategy development.

TECHNICAL MANAGER, PATENT AGENT and SENIOR RESEARCH FELLOW

Dow Electronic Materials Company, Marlborough, MA (Formerly, Rohm and Haas Electric Materials Company)

1989 – 2009

- Patent Agent. Experience in formulating IP strategies, numerous patent preparations, prosecutions and interference proceedings. Developed intellectual property strategies for four businesses.
- Technical Leader, solution-based precursors for solar cells. Technical Manager, Lithographic Double Patterning Program. Technical Manager of Molecular Electronics Program. Co-inventor on several organic memory applications. Developed and patented numerous photoresist platforms from G-line to 13.7 nm. Invented and patented several purification techniques. Developed manufacturing and inventory optimization methods. Developed and taught course on semiconductor lithography in the U.S., Europe and Asia. Numerous publications and talks. Graduate student mentor under the auspices of the Semiconductor Research Corporation. Winner of the 2002 Mahboob Khan Award for mentoring graduate students. Inventor of 29 issued U.S. patents and approximately 100 patents worldwide. Author of over 30 scientific publications.

DIRECTOR OF QUALITY AND NEW PRODUCT DEVELOPMENT

Monsanto Electronic Materials Company and later, Aspect Systems Corporation

1985 – 1989

- Co-Founded Aspect Systems with the aid of venture capital. Developed and patented several new photoresist materials. Implemented quality systems. Developed and published models for photoresist function.

MEMBER OF TECHNICAL STAFF

AT&T Bell Laboratories, Murray Hill, NJ and Allentown, PA.

1979 – 1985

- CMOS technology development. Designed, built and patented computerized optical film-thickness monitor/end-point detector for controlling feature sizes in photoresist. Solved materials problems in boron-phosphorus doped SiO₂ (nucleation of BPO₄ in the glass matrix) by developing and implementing new CVD and gettering processes. Eliminated aluminum metal defects in CMOS processors and DRAMs by discovering and eliminating differential thermal expansion effects due to silicate contamination. Courses in device physics, semiconductor fabrication, semiconductor materials physics.
- Researched crossed molecular beam charge exchange phenomena. Reported the first example of vibrational fine structure in a scattering measurement. Coauthored six fundamental papers and talks on molecular and atomic charge transfer phenomena.

EDUCATION

Registered to practice in patent matters, Canadian Intellectual Property Office

2004

Registered to practice in patent matters, United States Patent and Trademark Office

2001

Ph.D., Physical Chemistry, University of Wisconsin

1979

B.S., Chemistry, Loyola University of Chicago

1973