

THOMAS J. MORAVEC

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SUMMARY: Successfully developed several technologies from R&D to Manufacturing resulting in significant revenue generating Products: 1) LifeRx™ Photochromic Lenses and Melanin Sun Lenses sold by Lenscrafters resulting in \$50 Million annual revenue for Vision-Ease Lens; 2) Superior Mirror Coatings for Ring Laser Gyroscopes, a Billion Dollar product line at Honeywell.

Twenty+ years Management Experience: Bottom-Line focused manager with financial, quality, safety, operations and administrative experience (setting goals, evaluating performance of individuals, etc.) in several multinational companies. A team builder who can motivate, gain commitments and consensus at all levels.

Twenty+ years Hands-on Experience in Research, Development and Prototype Manufacturing covering the following areas: 1) Materials, Coatings, Optics, Photochromic dyes, and Optical Materials for Ophthalmic Lenses; 2) Chemical Vapor Deposition of Polycrystalline Diamond and Diamond-like Carbon; 3) Thin Film Materials and Thin Film Processes; 4) Electronic Materials and Electronic Packaging Materials, including metals, plastics, and ceramics. Strong grasp of R&D financial operations, project planning, and government contracting procedures. Adept at analyzing patent literature and drafting patents.

WORK EXPERIENCE:

1994-2009: Director of Technology, Key Scientist; Vision-Ease Lens, Ramsey, MN. Manager of eight person R&D group responsible for development of new products and product strategy for \$130M/year ophthalmic lens manufacturer. Developed major photochromic product (LifeRx™ Lens) that successfully competed with market leader, Transitions Optical, Inc.. This product alone resulted in \$50 Million annual sales for Vision-Ease Lens. Invented and Patented an injection molding lens technology that resulted in \$0.5 Million annual royalty license fees. Responsible for maintaining all intellectual property of company, including reviewing patent applications, drafting patent applications, working with legal counsel on responses to patent office, developing patent strategy and monitoring competitive patent activity. International experience included work in China to set up low cost manufacturer of photochromic lenses. Major technical efforts of this group included the development of photochromic dyes, materials and products; abrasion resistant, hard organic coatings for polycarbonate ophthalmic lenses; and thin film, vacuum deposited Anti-Reflective coatings for clear Lenses and Mirror coatings for sunwear lenses. Technical areas include lens optics, polarizing films and laminates, and L*,a*,b* and CIE color coordinate systems for color of lenses, films, coatings and sunwear. Developed test procedures for internal standards, national and international test standards including ANSI and ASTM standards for prescription and non-prescription eyewear.

1992-1993: Manager, MCM Development; Norton Diamond Film (a division of Norton Industrial Ceramics-Now Saint Gobain Corp.: www.saint-gobain-corporation.com), Northboro, MA. The responsibility of this position was to grow a product development group to develop Multi-Chip Module (MCM) products (those that combine several Integrated Circuits (ICs) into one module) that use Chemical Vapor Deposited (CVD) Diamond Substrates for thermal management of electronic systems. Wrote successful proposal to DARPA funding agency and managed interactions with DARPA through bidding process that resulted in the award of a \$26 Million contract to Norton Diamond Film to develop this technology.

1989-1992: Group Leader; Honeywell Solid State Electronics Center, Plymouth, MN. Managed a ten-person group that was responsible for the design, test, and implementation of advanced MCMs into Honeywell products. In 1990, managed the successful transfer of an MCM interconnect technology from R&D to manufacturing into a new \$2 Million facility inside an existing IC factory. Implemented Statistical Process

Controls to reduce the manufacturing cost of the MCM interconnect substrates from \$200/square inch to \$20/square inch.

Other Experience:

Section Chief, Honeywell Systems and Research Center, Bloomington, MN. Led this 15 person section to become a world leader in the development of Copper/Polyimide MCM Packaging Technology and its application as the packaging technology for VHSIC and VLSI submicron and radiation tolerant ICs. The MCM substrate was fabricated with semiconductor processes and equipment, i.e. sputtering, plating, photolithography, and wet and dry etching in various sequential process steps in a class 100 clean room. Reporting to this position were five scientists, six technicians and four student aides involved in research in developing interconnects, packaging and thin film technologies for high speed, high density electronic circuits for VHSIC, VLSI, and GaAs devices. The section had an annual operating budget of \$1.6M.

Research Scientist, Honeywell Sensors and Signal Processing Laboratory, Bloomington, MN. Pioneered the development and characterization of diamond-like thin carbon films by ion-beam and RF-plasma high vacuum deposition techniques. Developed new ion-beam sputtering deposition methods that resulted in superior optical coatings for ring laser gyroscopes. This work resulted in the receipt of the 1982 H.W. Sweatt Award, Honeywell's highest technical achievement award. Transferred this technology to manufacturing at a Honeywell Division where it is still used today in manufacturing.

Post-doctoral Research Associate, Rice University, Houston, TX. Developed and studied techniques for the production and measurement of spin polarized electrons for fundamental surface science studies.

Research Associate, University of Wisconsin, Madison, WI. Designed and built an Ultra-High Vacuum system to study the ultraviolet optical properties of bulk and thin film alloys and compounds using synchrotron radiation.

United States Army Signal Corps. Awarded direct commission as Second Lieutenant, advanced to First Lieutenant on active duty, and to Captain after four years as reservist. Duties as program manager for procurement and installation of Army radio systems in Germany and Battalion Intelligence/Operations Staff Officer for Signal Battalion in Thailand.

EDUCATION: B.A., Physics, Ripon College, Ripon, WI
Ph.D., M.A., Physics, University of Wisconsin, Madison, WI

PATENTS (with co-inventors):

US#4,176,207, "Non-Birefringent Thallium Iodide Thin Films for Surface Protection of Halide Optical Elements"
US#4,176,208, "Production of Inhomogeneous Films"
US#5,757,459, "Multifocal Optical Elements"
US#5,827,614, "Production of Optical Elements"
US#5,856,860, "Multifocal Optical Elements"
US#6,328,446, "Production of Optical Elements"
US#6,814,896, "Production of Optical Elements"
US#6,761,452, "Light Polarization Film with Melanin"
US#6,833,159, "Method for Applying Hydrophobic Anti-Reflection Coatings to Lenses and Lens Blanks"
US#6,886,937, "Ophthalmic Lens with Graded Interference Coating"
US#7,048,997, "Production of Optical Elements"
US#7,077,985, "Injection Molding of Lens"
US#7,144,598, "Rapid Thermally Cured, Back Side Mar Resistant and Antireflective Coating for Ophthalmic Lenses"

HOBBIES: Jogging, Reading and Biking

PUBLICATIONS: Over 40 technical publications in Professional Journals.