James Intrater
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Summary: A materials and process engineer with over (30) years of expansive experience. This includes work in metallurgy, ceramics and polymers. I have work specifically in such areas as: thick film systems, thin film deposition, corrosion engineering, electronic packaging, sintering, as well as brazing and soldering to dissimilar materials, and materials analysis.

Education:

BS, Ceramic Engineering, Rutgers University, 1986
MS, Metallurgical Engineering, University of Tennessee, 1999

Work History:

1/78 to 3/86 Technician, Advanced Technology, Inc. (Englewood, NJ)

This was a materials R&D company which my father started. I worked there processing metal powders for research or samples for customers.

4/86 to 12/86 Engineer, Fountainhead Production Co. (Grants Pass, OR)

Company fabricated a simple exercise unit (bench with free weights). While there we were asked to work on a screen printed sheet for stealth aircraft windows. I performed this work based on my own experience in metallic ink processing.

1/87 to 9/93 Engineer, Advanced Technology, Inc. (Palisades Park, NJ -later San Jose, CA)

Here I returned to my father's company which my brother had taken over. We exploited a chemistry we owned which allowed for the soldering and brazing between varied materials. One product we successfully launched was graphite soldered to copper. These were consumable sputtering target assemblies used in the fabrication of magnetic computer "hard" discs.

10/93 to 1/00 Senior Engineer, Oryx Technology Corp. (Fremont, CA)

Advanced Technology, Inc. became Oryx Tech after acquiring fresh projects and becoming a publicly-traded company (NASDAQ). During this time highlights of my work included:

- On-going support of our sputtering target products.
- Development of high temperature furnaces for NASA (for microgravity crystallization experiments).
- Lead engineer in the design and fabrication of a voltage surge suppression device. This device is sold today by Littelfuse and by Bussmann under the trade name SurgX. In this work I performed basic theoretical modeling, design of the ultimate device, and materials selection work and secured federal R&D financial support.

1/00 to 1/03 President, Integer Engineering Corp. (Fremont, CA)

Consulted in materials and process engineering. This included work in coating development as well as the fabrication of ceramic mirrors.

1/03 to 10/09 Chief Engineer, Materials Modification, Inc. (Fairfax, VA)

Here I worked on a multiplicity of projects, each funded through federal R&D contracts. I worked directly or in support of the many projects including:

- Ceramic Body Armor: Here I developed a materials design which pushed the field forward to its next milestone in defeating armor-piercing ammunition. I also designed a ceramic chest plate with conformable function.
- Radiation-Resistant Blanket: I laid out a detailed process including selection of processes, vendors and materials as well as design and ballistic nylon packaging for the production of blankets which would stop gamma radiation from striking the body. Such radiation is a concern to the US Department of Homeland Security which wishes to have such blankets in defeating with terrorist attacks involving nuclear materials (e.g., dirty bombs).
- Nano-Tungsten: Here I was the principal investigator in the fabrication of ultra-fine grain tungsten pieces which could be used in nuclear fusion reactors. The actual final part would be a "divertor" plate where the grain size could help defeat "bubble" formation on the surface of the tungsten through helium and hydrogen ionic bombardment.
- Anti-Fog Coating: Was working on a coating for polycarbonate goggle lenses which would not form fog on the inside surface.
- Chemical Suit Liner: A co-worker developed a membrane which would allow the wear to sweat out while preventing chemical warfare agents from getting in. This is to be used on suits worn by military personnel attending to a chemically hazardous environment. The sweat-out ability would allow for extended wear comfort, a

paramount issue. I identified a substantially cheaper base material for the membrane fabrication and set up with its manufacturer that they would modify it and quantitatively test it with and without our over-coating material free-of-charge.

- Corrosion-Resistant Coating: Laid out successful plan for coating of alloy steel with a water-soluble silicate for temporary resistance to corrosion prior to the painting of armored vehicle doors and panels.
- Syringe/Squeeze Tube: The company was developing a product which could be injected into a bleeding would. It would foam up and stop the bleeding. I was working on the development of a syringe and, separately, a squeeze tube which could deliver three ingredients simultaneously into a mixing nozzle. I laid out the basic design features required.

10/09 to Present Independent Consultant, Columbus Nova (New York, NY)

Columbus Nova is a financial group with $15 billion in assets. I perform technical due diligence on potential investments in engineering companies.

Skills

Writing of research proposals, presentations and reports.

Publications:

1. J. Intrater and T. S. Sudarshan, Low Cost, High Performance Divert and Attitude Control Systems (DACS), Phase II Interim Report, US Army Space and Missile Defense Command, May, (2007).
2. R. Radhakrishnan and J. Intrater, “ZnO based Light Emitting Diodes”, Phase I Final Report, U.S. Department of Energy, July, (2005).
3. Raffi Sahul and J. Intrater, “Monitoring ozone exposure in plants”, SBIR Phase I Final Report, U.S. Department of Agriculture, February, (2005).
4. T.S. Sudarshan, J. Intrater and Raffi Sahul, “Embedded Nanosensors for Corrosion”, Phase II Final Report, U.S. Army Tank Automotive Command, Warren, MI, July, (2004).
5. Intrater, J., “The Hot-Bottom Ceramic Package”, Advanced Packaging, Pennwell, December, (2002).
6. Intrater, J., “A New Metal Spray Option”, Welding Journal, American Welding Society, Miami, FL, Vol 81, No 11, pp 43-46, (2002).
7. Intrater, J. "Microanalysis of a Copper-to-Graphite Solder Bond", Mat. Res. Soc. Symp. Proc. Vol. 314, MRS, (1993).
8. Intrater, J., "Working with Phase Diagrams”, Ceramic Industry Magazine, Business News Publishers Co., Solon, OH, Vol. 141, No. 3, pp. 32-33, (1993).
9. Intrater, J., "Review of Some Process for Ceramic-to-Metal Joining", Materials & Manufacturing Processes, Marcel Dekker, Inc., Vol 8, No 3, pp. 353-373, (1993).

10. 8. Intrater, J., "How to Select the Right Metallization/Joining Method", Ceramic Industry Magazine, Business News Publishers Co., Solon, OH, Vol. 136, No. 2, pp. 34-37, (1991).
11. Intrater, J., "The Challenge of Bonding Ceramics to Metals", Machine Design Magazine, Penton Publishing, Inc., Cleveland, Vol. 61, No. 24, pp. 95-100, (1989).
12. Over (50) published technical book reviews.

Solid State Device Patents:

- Intrater, “OVER-VOLTAGE PROTECTION DEVICE FOR INTEGRATED CIRCUITS”, U. S. Patent # 6,433,394, (2002).
- Intrater, Behling, “OVER-VOLTAGE PROTECTION FOR ELECTRONIC CIRCUITS”, U. S. Patent #: 6,373,719, (2002).
- Shrier, Intrater, et al., “OVER-VOLTAGE PROTECTION DEVICE AND METHOD FOR MAKING SAME“, U. S. Patent #:6,172,590, (2001).
- Shrier, Intrater, et al., “OVER-VOLTAGE PROTECTION DEVICE FOR INTEGRATED CIRCUITS”, U. S. Patent #:6,130,459, (2000).
- Intrater and Joshi, “OVER-VOLTAGE PROTECTION SYSTEM FOR INTEGRATED CIRCUITS USING THE BONDING PADS AND PASSIVATION LAYER”, U. S. Patent #:6,064,094, (2000).