

**STANLEY R. TROUT, Ph.D., P.E.**

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**MOLYCORP, INC., Greenwood Village, CO, Fairfield, NJ, White Plains, NY**

*Director Magnet Business [2010 to date]*

Responsible for directing the metal, alloy and magnet processes for our “Mine to Magnets” business strategy

*Metallurgist-Technical Sales and Development [1988 to 1997]*

- Responsible for sales and promoting new applications of the rare earths.
- Managed over 130 accounts in North America, with annual sales ranged from \$15 to \$20 million.
- Resolved product specification, quality, scheduling, pricing and contract issues.
- Application areas covered: permanent magnets, glass polishing compounds, petroleum and environmental catalysts, thermal barrier coatings, nickel metal hydride batteries, advanced ceramics and ferroalloys.



**SPONTANEOUS MATERIALS, Fishers, IN [2001 to date]**

*Owner*

A consultancy specializing in solving client’s problems with magnetic materials and the rare earths. A resource for technical training and writing. (since joining Molycorp, the practice is limited to technical training.)

**ALMA COLLEGE, Alma, MI [2006 to 2007]**

*Visiting Assistant Professor of Physics*

**MAGNETICS MAGAZINE, Greenwood Village, CO [2005 to date]**

*Contributing Editor*

Writer of the Spontaneous Thoughts column

**MARIAN COLLEGE, Indianapolis, IN [2002 to 2010]**

*Adjunct Lecturer in Physics*

**MAGNEQUENCH INTERNATIONAL, INC., Anderson, IN [1997 to 2001]**

*Applications Engineer*

- Worked with customers to resolve material selection, design, coating, adhesive and magnetic testing issues. Created a database of information and resources that allowed most questions to be answered in less than an hour.
- Initiated company web site
- Updated technical literature, application bulletins and data sheets.
- Chairman of the Technical Committee of the International Magnetism Association. Helped to rewrite Standard for Permanent Magnets Materials, MMPA-0100-00.

**HITACHI MAGNETICS CORP., Edmore, MI [1984 to 1988]** (closed July 2005)*Senior Development Engineer*

- Developed new NdFeB magnet alloys with improved thermal stability.
- Liaison to Hitachi research group in Kumagaya, Japan.
- Established vacuum induction melting, both as a research tool and as a viable production process.
- Invented hydrogen decrepitation, the standard process to pulverize NdFeB alloys.
- Developed internal magnetic materials training course and a seminar to promote the use of NdFeB magnets with major customers.

**CRUCIBLE MAGNETICS, Elizabethtown, KY [1982 to 1984]** (Became Vacuumschmelze and closed in December 2003)*Manager of Rare Earth Technology*

- Responsible for SmCo magnet production, quality control, applications.
- Assisted in technology transfer from TDK Corporation, Japan.
- Modernized an ancient array of magnetic test equipment. Examples: automated density measurement, Helmholtz coils with digital solid state fluxmeters.
- Introduced the use of computers in applications, design and production. Created software to estimate magnetic fields and forces for simple geometries.
- Started up the first VFS vacuum sintering furnace, in record time.

**RECOMA, INC., Fairfield, NJ [1979 to 1982]** (Became Precision Magnetics)*Manager of Materials Development, Design Engineering and Quality Control*

A small start-up company to produce and market SmCo<sub>5</sub> magnets in North America, using technology developed by Brown Boveri (now Asea Brown Boveri) in Switzerland.

- Turned around failed quality program, winning approval from Northrup.
- Interfaced with customers on design and application issues, as well as source inspectors, auditors and quality managers.

**EDUCATION****UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA [1974 to 1979]**

Research Fellowship in Metallurgy and Materials Science

Ph.D.: Magnetocrystalline Anisotropy, Magnetostriction and Saturation Magnetization of SmCo<sub>5</sub> Single Crystals

M.S. High Field Magnetic Measurements on Sintered SmCo<sub>5</sub> Permanent Magnets

Techniques used: torque magnetometer, vibrating sample magnetometer, strain gages, high field Bitter magnets.

Teaching Assistant for undergraduate courses. Advisor: C. D. Graham, Jr.

**LAFAYETTE COLLEGE, Easton, PA [1969 to 1973]**

B.S. Physics with Honors, nine semesters of Mathematics. Set up high pressure viscometer. Teaching Assistant.

**Publications** (most may be found at [www.spontaneousmaterials.com/papers.htm](http://www.spontaneousmaterials.com/papers.htm))